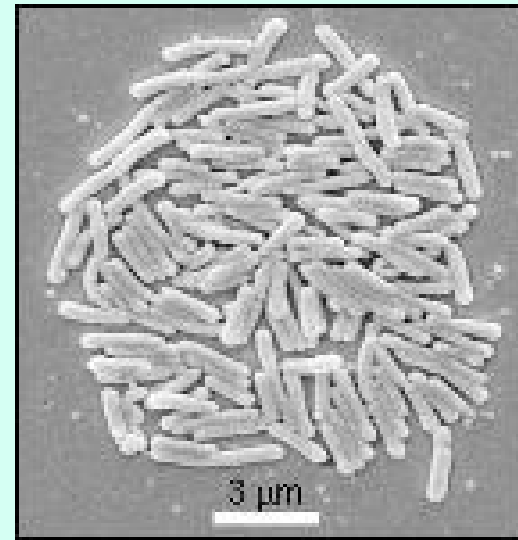
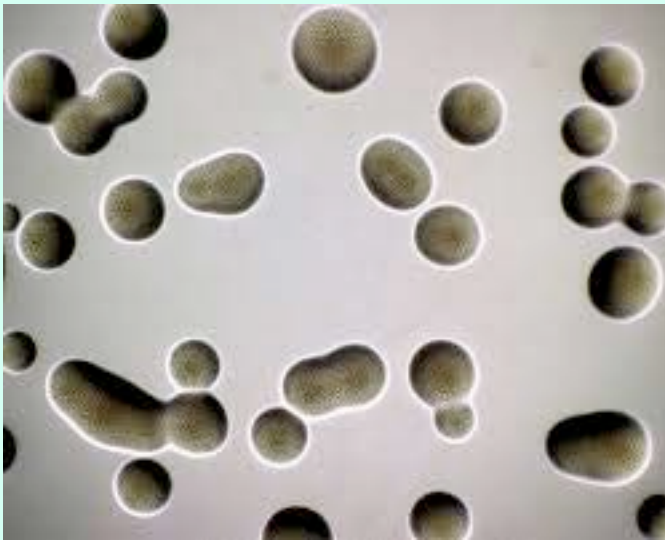


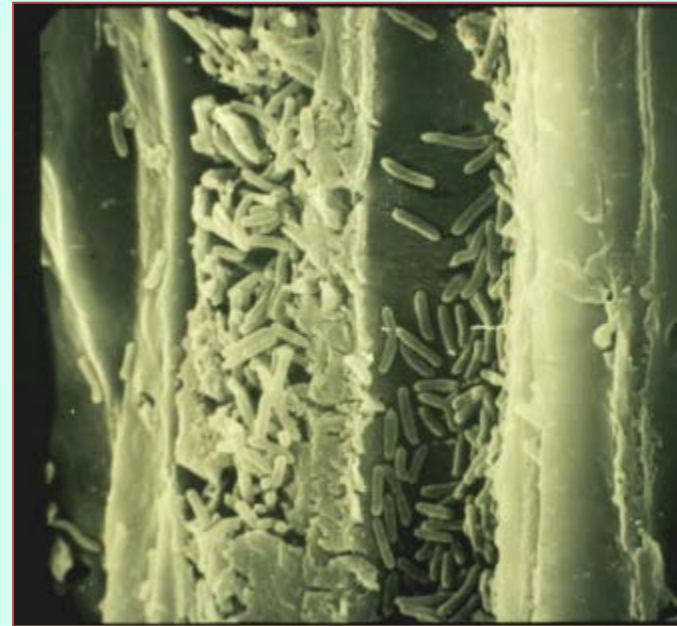
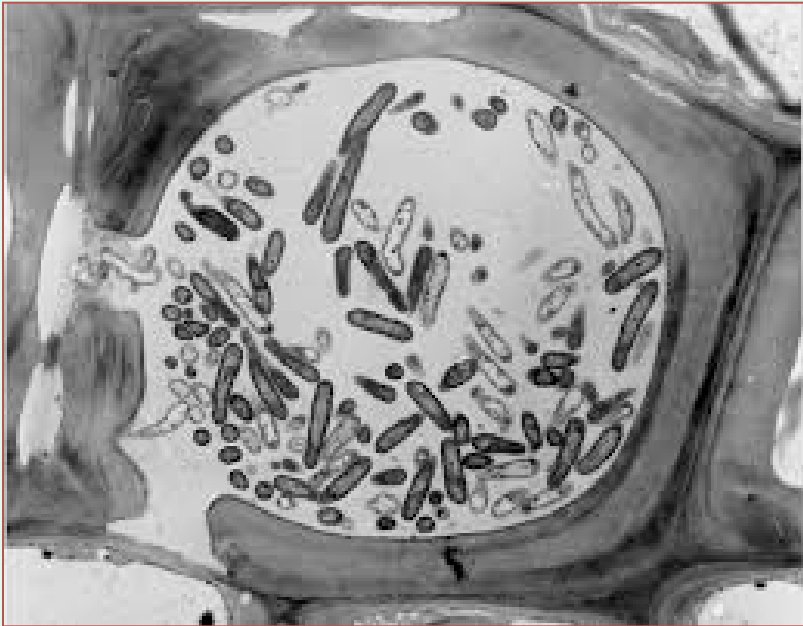
Current situation of *X. fastidiosa* in Europe

Donato Boscia

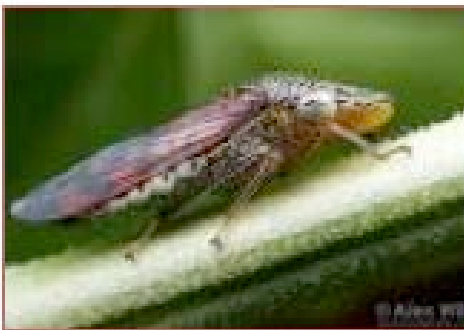
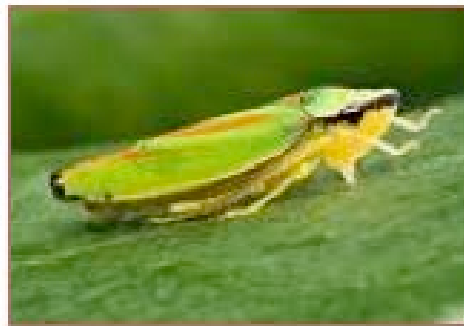
Xylella fastidiosa is a Gram-negative bacterium, asporigen,
Of difficult growth in pure culture



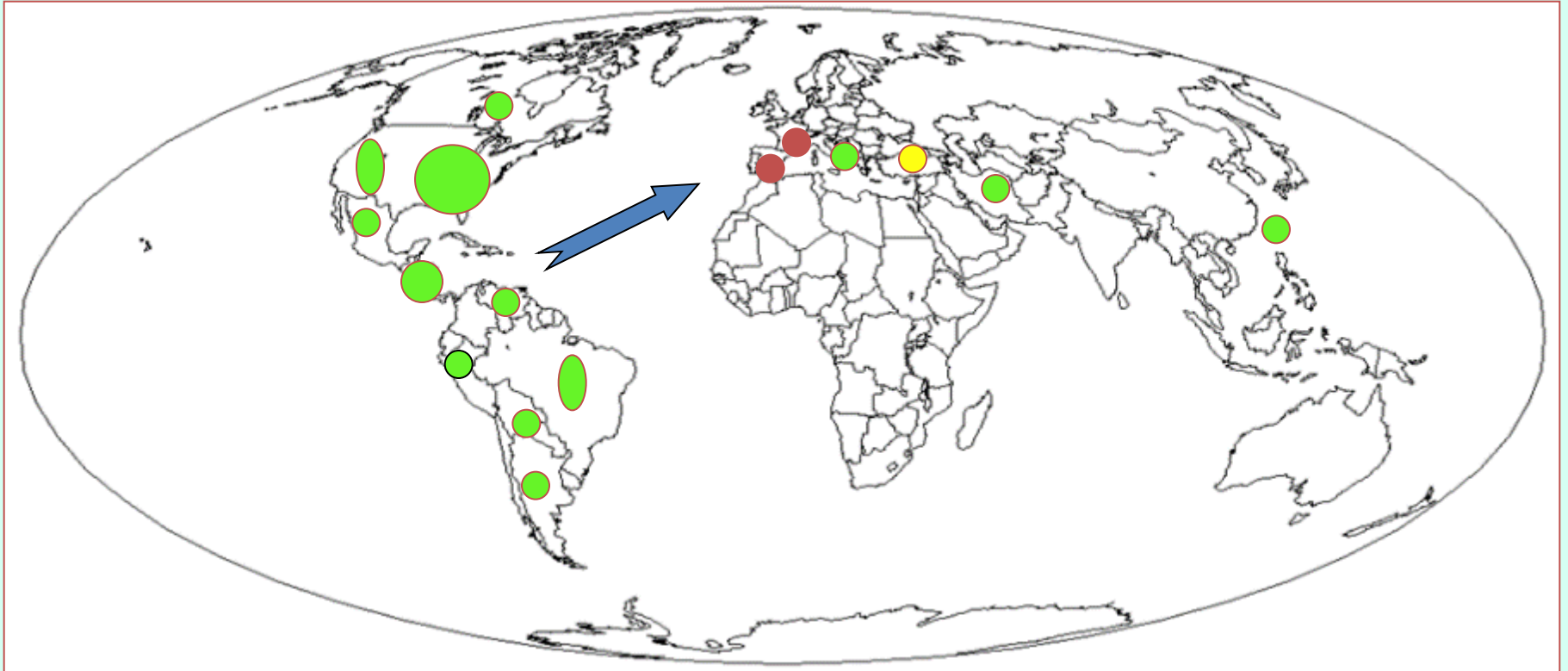
It is xylem limited



It is spread in nature by several species of leafhoppers
(Homoptera:Cicadellidae)



Wide geographical distribution



Large range of natural hosts:
Ca. 70 families, 100 genera, over 350 species.
It is causal agent of severe diseases in many crops

Pierce disease



È una malattia che uccide le viti e non ne permette
la coltivazione in vaste aree degli USA e del Golfo
del Messico

Citrus variegated chlorosis (CVC) (Brasil, Argentina, Central America)



Phony peach (Southeast USA)



Pianta
infetta

Pianta
sana



Infetto



Leaf scorch of stone fruits

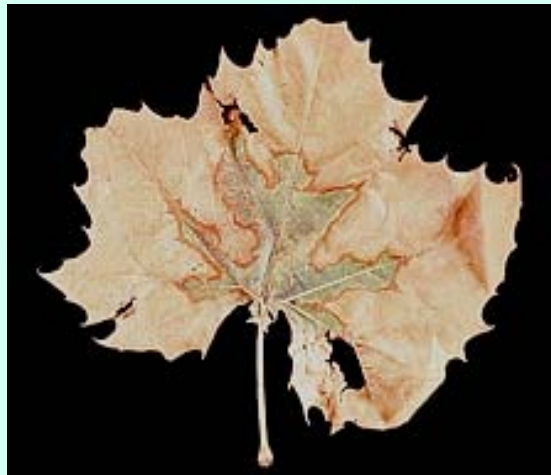


Almond

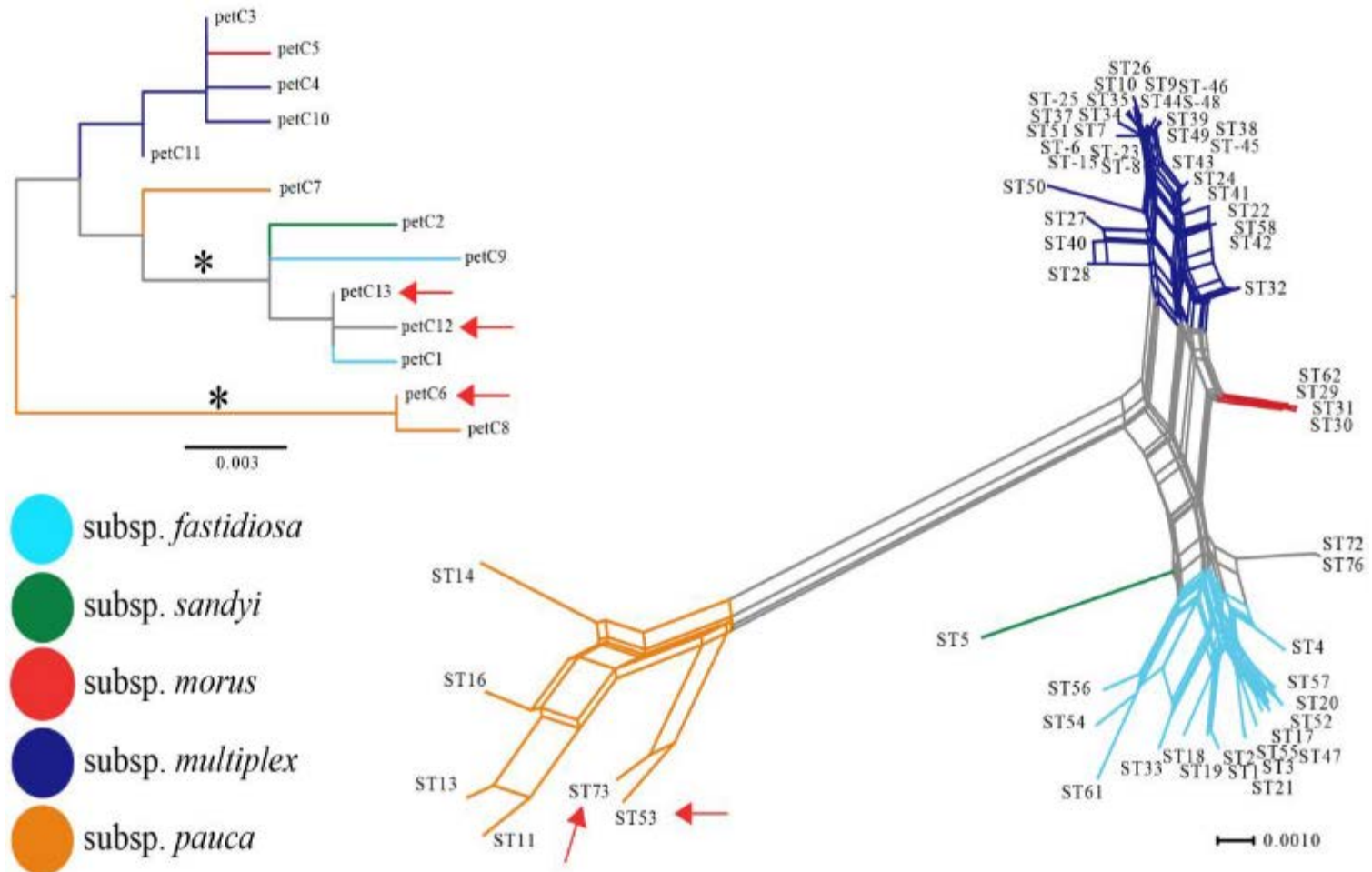


Cherry

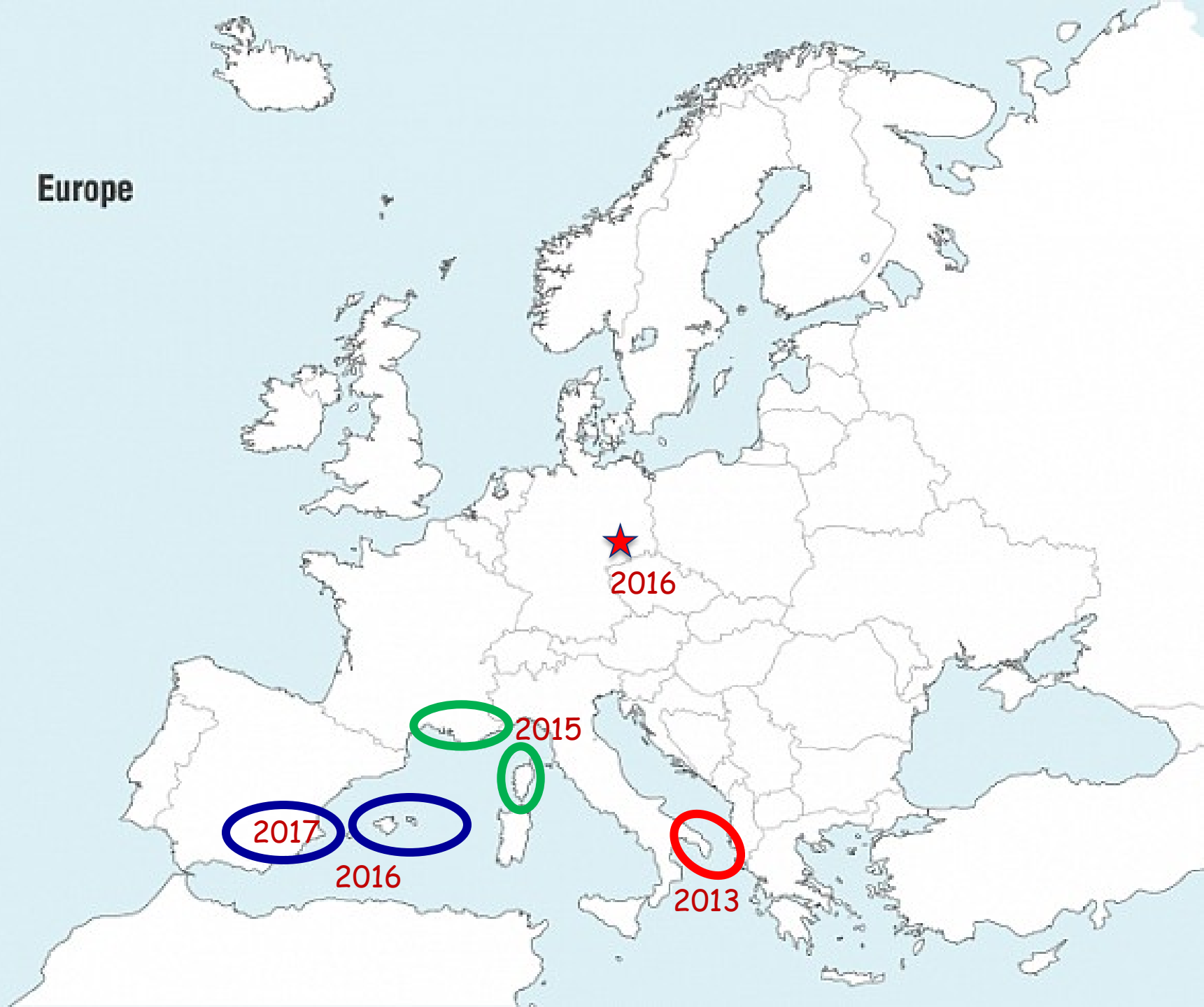
Leaf scorch of forest and ornamental trees



This biological variability is consequence of a significant genetic variability of
Xylella fastidiosa



Europe



Europe



2013

2013: first report of a new disease: OLIVE QUICK DECLINE SYNDROME OF OLIVE (OQDS)





October 2013



In affected groves the totality of the trees can be symptomatic







The abandonment?



The age?



The soil?

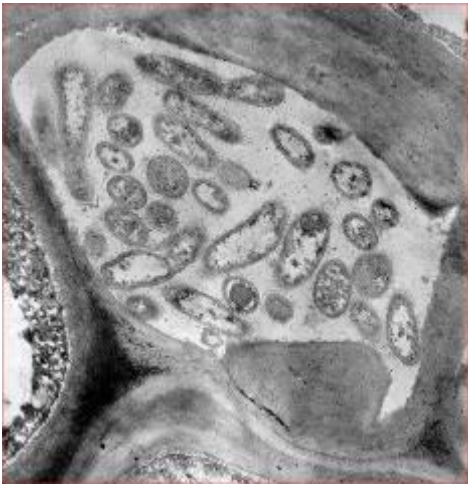






The pruning?





October 2013

Identification of *Xylella fastidiosa* in symptomatic plants

Journal of Plant Pathology (2013), 95 (3), 659-668

DISEASE NOTE

IDENTIFICATION OF DNA SEQUENCES
RELATED TO *XYLELLA FASTIDIOSA* IN
OLEANDER, ALMOND AND OLIVE TREES
EXHIBITING LEAF SCORCH SYMPTOMS
IN APULIA (SOUTHERN ITALY)

M. Saponari¹, D. Boscia¹, F. Nigro² and G.P. Martelli^{1,2}



Gallipoli, October 2013



Gallipoli, March 2016



1500 years old
30 September 2014



Same tree in July 2016



Gallipoli, 1 July 2015



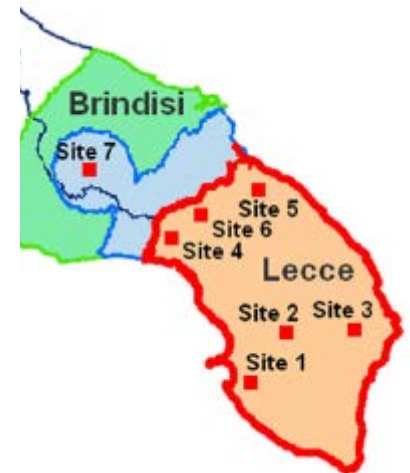
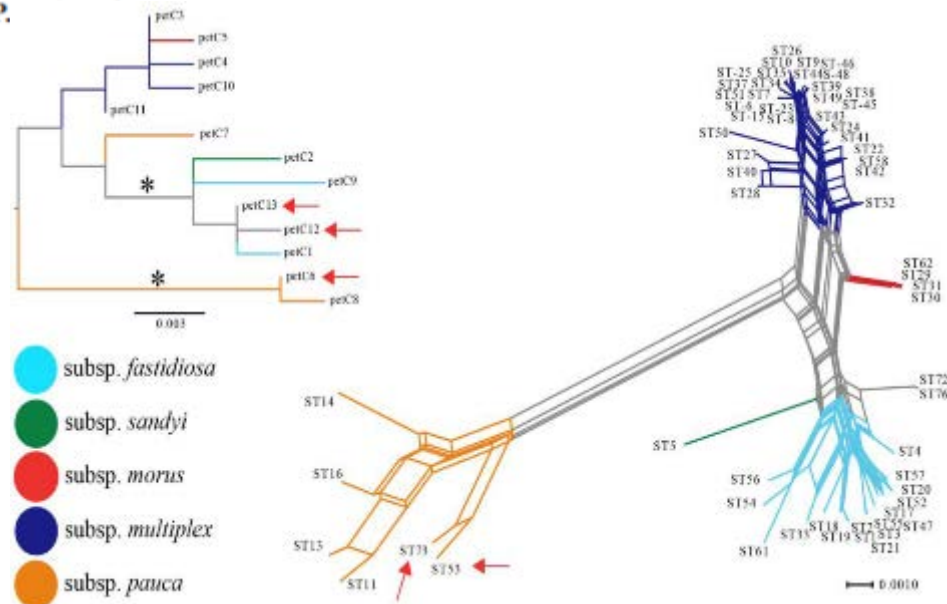
Genetic analysis made so far suggest in the Salento peninsula the presence of a single genotype, CoDiRO (ST53), of subspecies *pauca*, originating from Central America

Eur J Plant Pathol
DOI 10.1007/s10658-016-0894-x



Intercepted isolates of *Xylella fastidiosa* in Europe reveal novel genetic diversity

G. Loconsole • M. Saponari • D. Boscia • G. D'Attoma •
M. Morelli • G. P. Martelli • R. P.

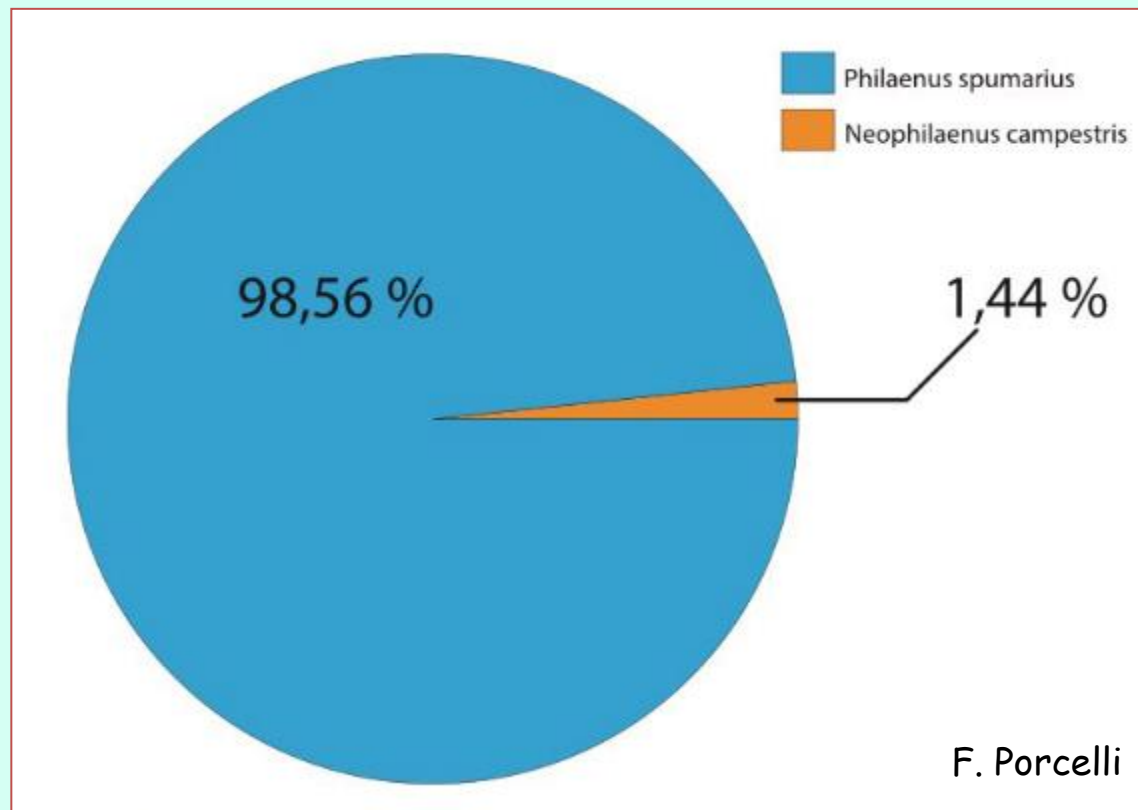


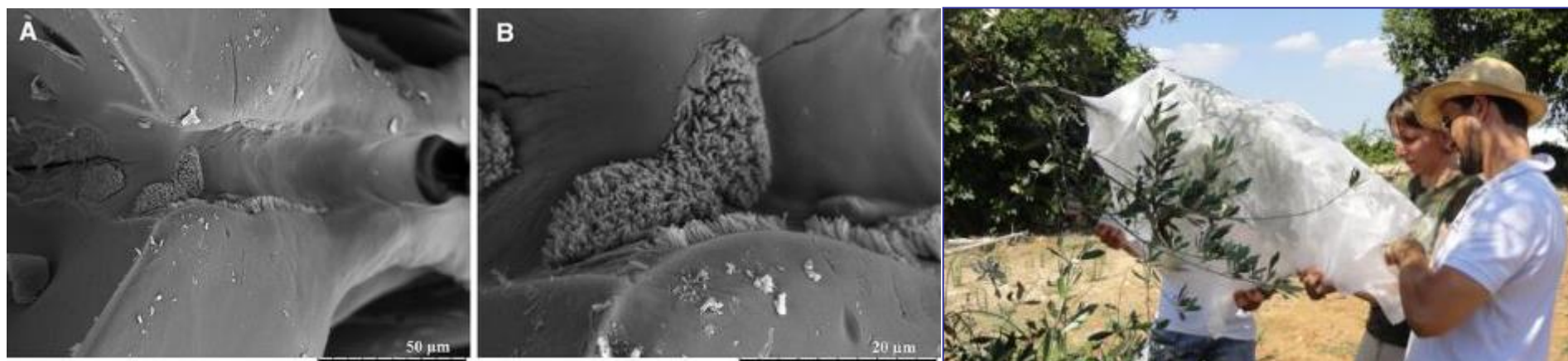
The vector



The spittlebug *Philaenus spumarius* is the main vector of *X. fastidiosa* CoDiRO. Hundreds of adults can be found on a single olive tree. A very high percentage of them (up to 70-80%) may contain the bacterium

P. spumarius is much more frequent than *Neophilenus campestris*, a potential vector whose vectoring activity has not been demonstrated





In 2016 the capability of *Philaenus spumarius* to transmit *X. Fastidiosa* from olive to olive has been demonstrated



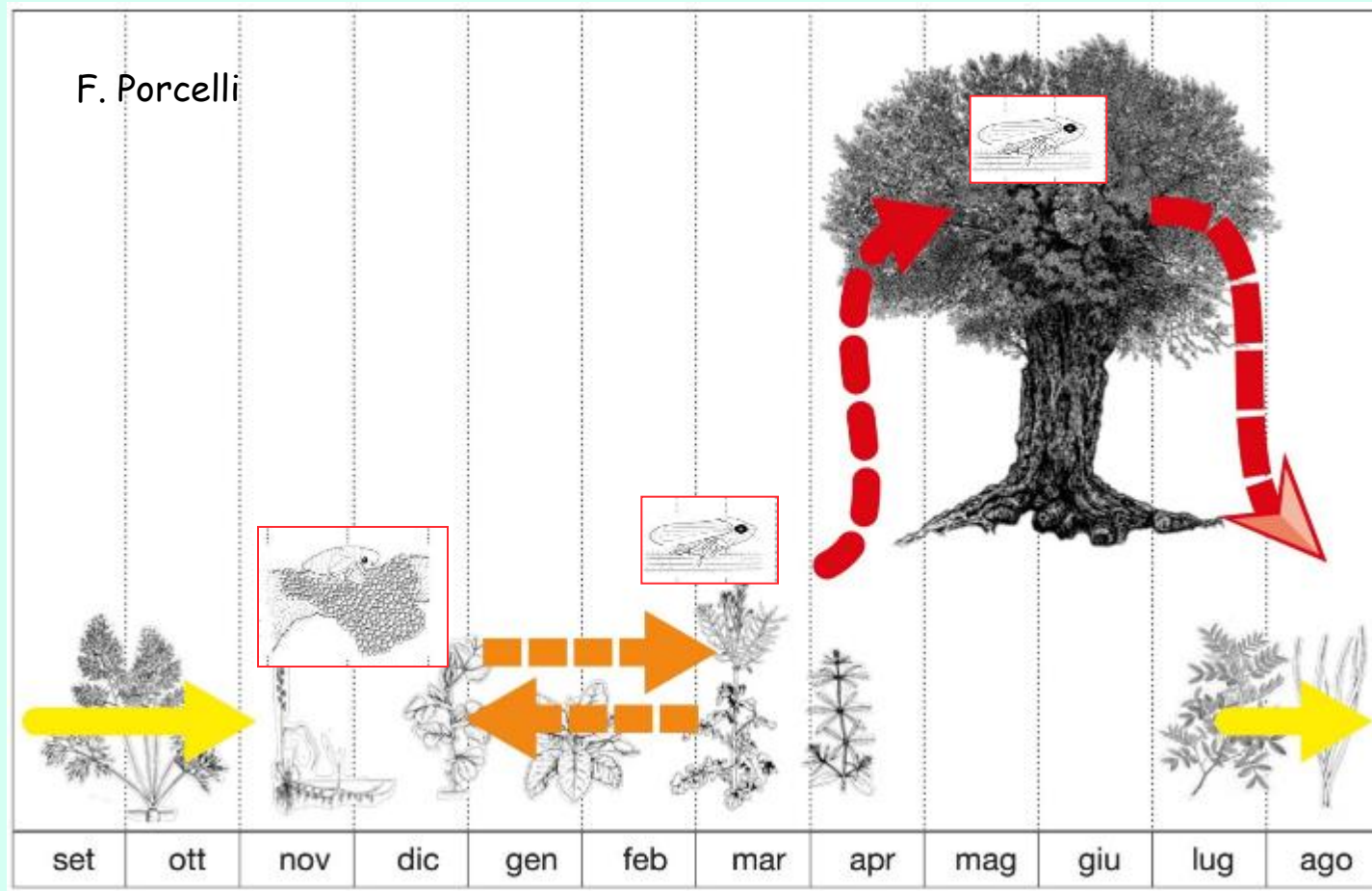
[Journal of Pest Science](#)

pp 1-10

Spittlebugs as vectors of *Xylella fastidiosa* in olive orchards in Italy

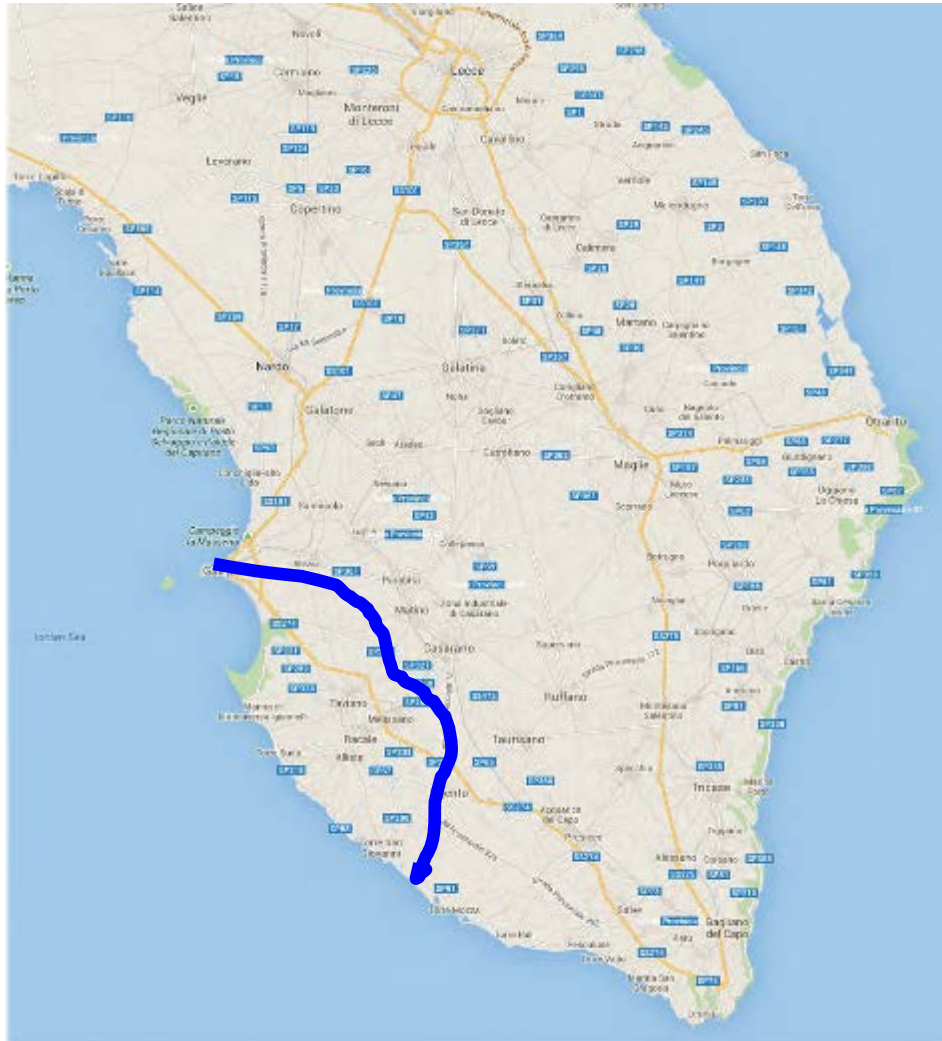
Daniele Cornara, Maria Saponari, Adam R. Zeilinger, Angelo de Stradis, Donato Boscia, Giuliana Loconsole, Domenico Bosco, Giovanni P. Martelli, Rodrigo P. P. Almeida, Francesco Porcelli 

Biological cycle of *P. spumarius*



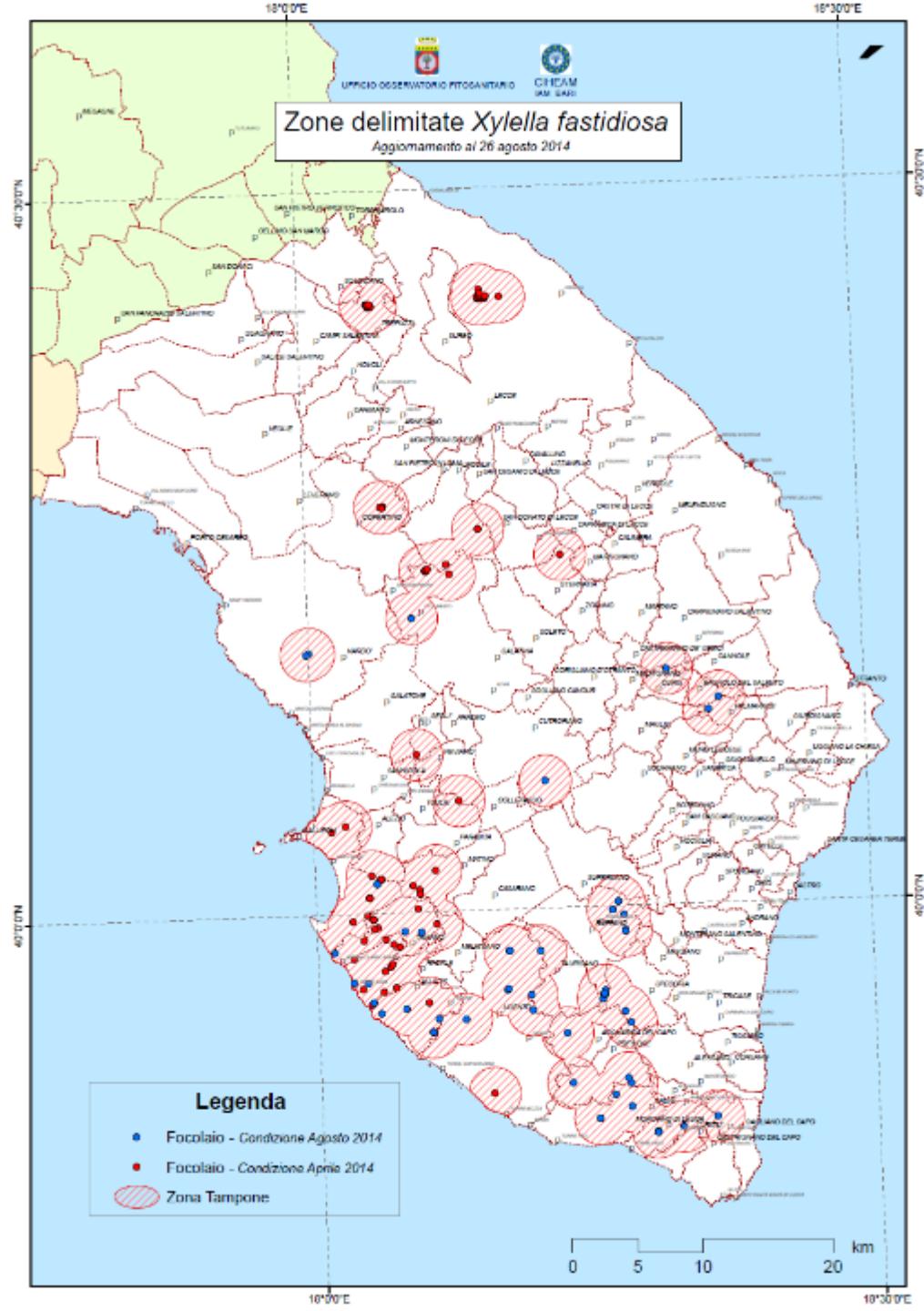
Olive is the favourite host of the spittlebug and the major source of inoculum for plant-to-plant spreading of *Xylella*

Area interested by the disease in autumn 2013

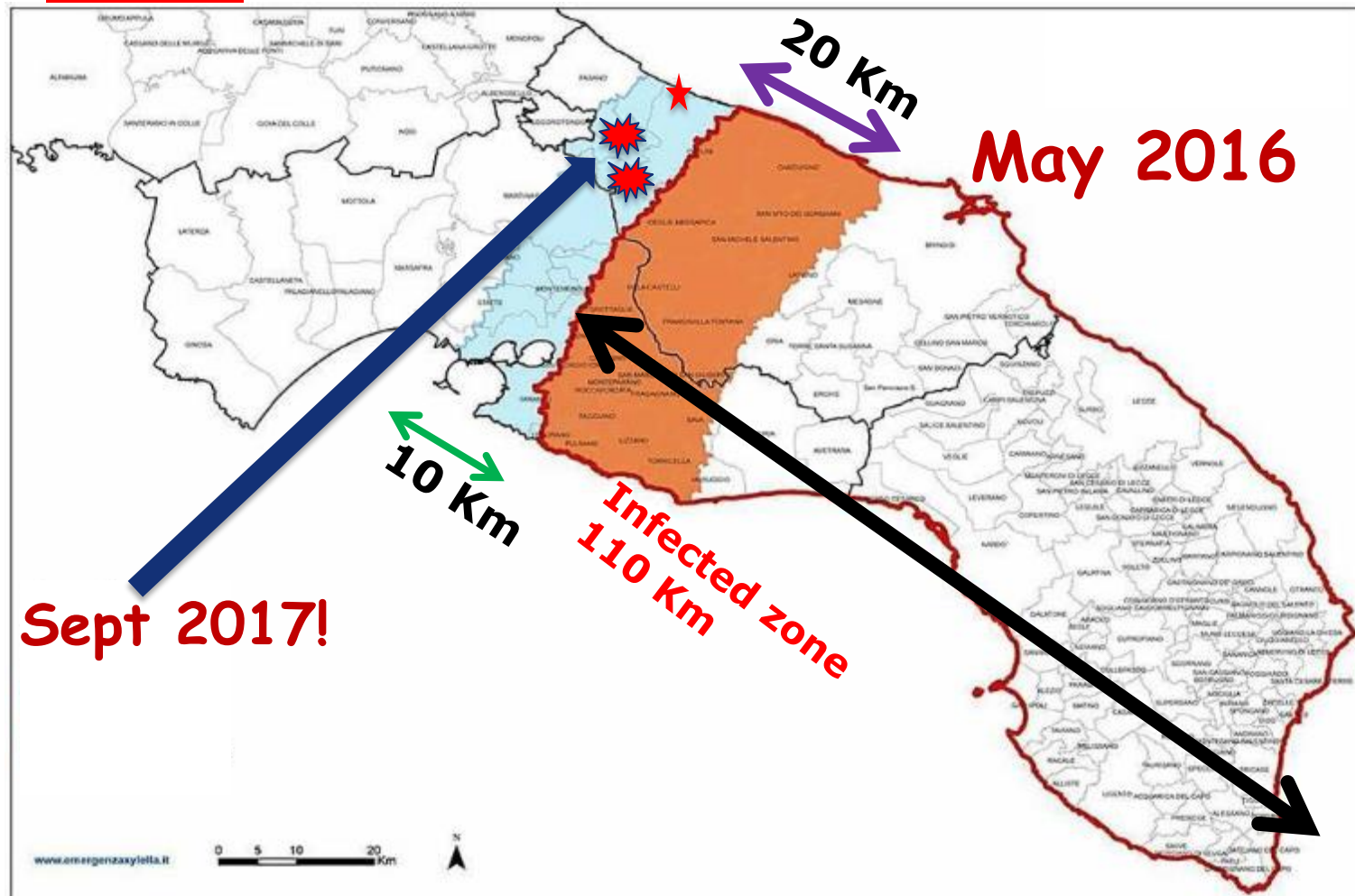


During the summer 2014 it appeared clear that the eradication was not possible anymore:

*The program of **ERADICATION** was replaced by a program of **CONTAINMENT***



- Current demarcated area: circa **5000 KM²**, length **120 Km**
- Nr. of Olive trees in the demarcated area: **ca. 20 millions**



1. *Acacia saligna* (Labill.) Wendl.
2. *Asparagus acutifolius* L.
3. *Catharanthus*
4. *Chenopodium album* L.
5. *Cistus creticus* L.
6. *Dodonaea viscosa* Jacq.
7. *Eremophila maculata* F. Muell.
8. *Erigeron sumatrensis* Retz.
9. *Erigeron bonariensis* L.
10. *Euphorbia terracina* L.
11. *Grevillea juniperina* L.
12. *Heliotropium europaeum* L.
13. *Laurus nobilis* L.
14. *Lavandula angustifolia* Mill.
15. *Lavandula stoechas* L.
16. *Myrtus communis* L.
17. *Myoporum insulare* R. Br.
18. *Nerium oleander* L.
19. *Olea europaea* L.
20. *Pelargonium x fragrans*
21. *Phillyrea latifolia* L.
22. *Polygala myrtifolia* L.
23. *Prunus avium* (L.) L.
24. *Prunus dulcis* (Mill.) D.A. Webb
25. *Rhamnus alaternus* L.
26. *Rosmarinus officinalis* L.
27. *Spartium junceum* L.
28. *Vinca*
29. *Westringia fruticosa* (Willd.) Druce
30. *Westringia glabra* L.

Hosts Plants in Italy

-EU Commission database-





PLANTS

European Commission > Food Safety >

Plants > Plant health and biosecurity > EU Plant Health legislation > Emergency control measures by species > Xylella fastidiosa > C
found to be susceptible to Xylella fastidiosa in the Union territory



HEALTH

FOOD

ANIMALS

PLANTS

AMR

PLANT HEALTH & BIOSECURITY

Legislation

[New EU plant health rules](#)

[Emergency measures](#)

[Xylella fastidiosa](#)

[Long-term measures](#)

Trade within the EU

Non-EU trade

Protected zones

Commission database of host plants found to be susceptible to Xylella fastidiosa in the Union territory

- [update 9](#) - 28 July 2017
- [update 8](#) - 11 January 2017
- [update 7](#) - 11 November 2016
- [update 6](#) - 15 July 2016
- [update 5](#) - 27 June 2016
- [update 4](#) - 30 May 2016
- [update 3](#) - 18 April 2016
- [update 2](#) - 3 February 2016
- [update 1](#) - 21 December 2015

Non hosts



Search of cultivars with characters of **resistance**: traits of resistance in **Leccino** and **FS-17**



RESEARCH ARTICLE

Open Access



Transcriptome profiling of two olive cultivars in response to infection by the CoDiRO strain of *Xylella fastidiosa* subsp. *pauca*

Annalisa Giampetruzzi¹, Massimiliano Morelli², Maria Saponari², Giuliana Loconsole¹, Michela Chiumenti², Donato Boscia², Vito N. Savino¹, Giovanni P. Martelli¹ and Pasquale Saldarelli^{2*}

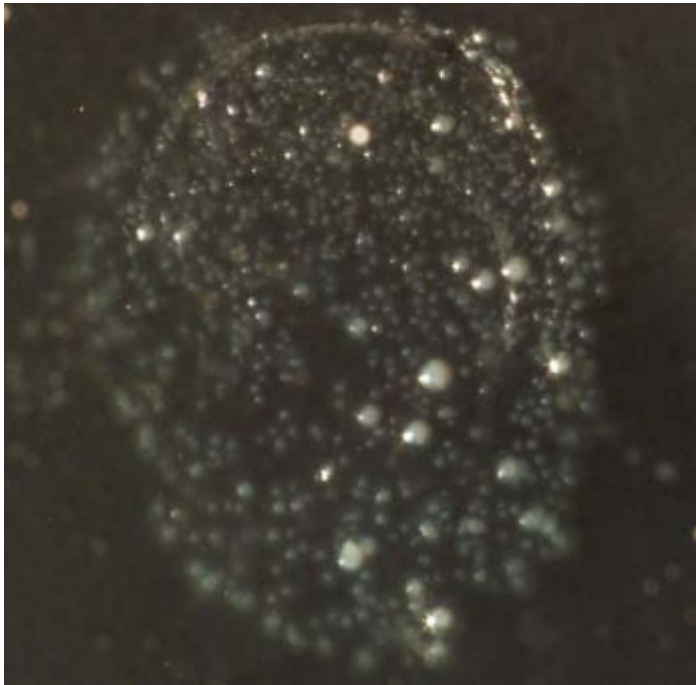
Is Xylella fastidiosa CoDiRO strain able to cause QDS in olive?

Pathogenicity tests (2014-2016)



Pilot project on *Xylella fastidiosa* to reduce risk assessment uncertainties

- **Colturing and inoculation of strain CoDiRO (ST53)**

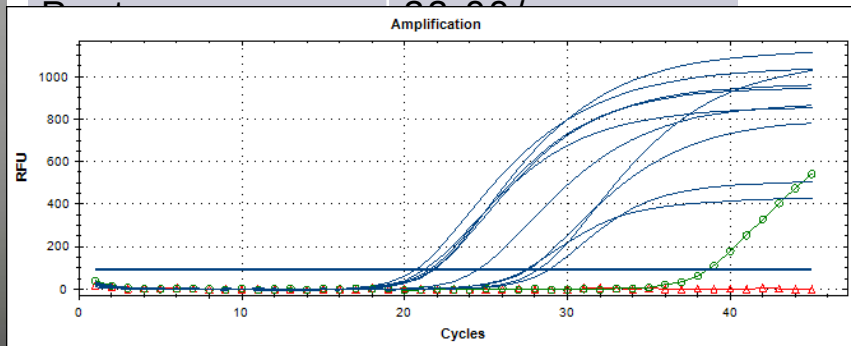


Symptoms in Cv. Cellina 13 months p.i.





Olive seedling	qPCR Harper (STEM / PETIOLES)
8cm below p.i.	28.00/-
4cm below p.i.	27.00/29.00
Colletto	27.60/-
	20.00/21.00
	28.00/29.60
	21.00/21.90
	24.00/26.00
	21.00/22.30
	21.00/23.40
	21.00/23.00
	22.00/23.00



Symptoms in Cv. Cellina 13 months p.i.



**Symptoms in
Polygala myrtifolia
needle inoculated**



EXTERNAL SCIENTIFIC REPORT



APPROVED: 22 March 2016

PUBLISHED: 29 March 2016

Pilot project on *Xylella fastidiosa* to reduce risk assessment uncertainties

Institute for Sustainable Plant Protection, National Research Council of Italy, CNR

In collaboration with:

Dipartimento di Scienze del Suolo, della Pianta e degli Alimenti, Università degli Studi di Bari Aldo Moro (Italy)

Centro di Ricerca, Sperimentazione e Formazione in Agricoltura – Basile Caramia, Locorotondo, Bari, Italy

Authors:

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Istituto per la Protezione Sostenibile delle Piante, Consiglio Nazionale delle Ricerche, Unità Organizzativa di Bari (Italy)

Giuliana Loconsole, Leonardo Susca, Oriana Potere, Vito Savino, Giovanni P. Martelli

Dipartimento di Scienze del Suolo, della Pianta e degli Alimenti, Università degli Studi di Bari Aldo Moro (Italy)

Francesco Palmisano, Crescenza Dongiovanni, Antonia Saponari, Giulio Fumarola, Michele Di Carolo

Centro di Ricerca, Sperimentazione e Formazione in Agricoltura – Basile Caramia, Locorotondo, Bari, Italy

March 2016: according to the evaluation of the plant health panel of EFSA, the Koch's postulates have been fulfilled



About ▾ News ▾ Discover ▾ Science ▾ Publications ▾ Applications ▾ Engage ▾

Home ▸ News ▸ Xylella 'is causing olive disease in Ita...

29 March 2016



print



Tweet

Xylella 'is causing olive disease in Italy'

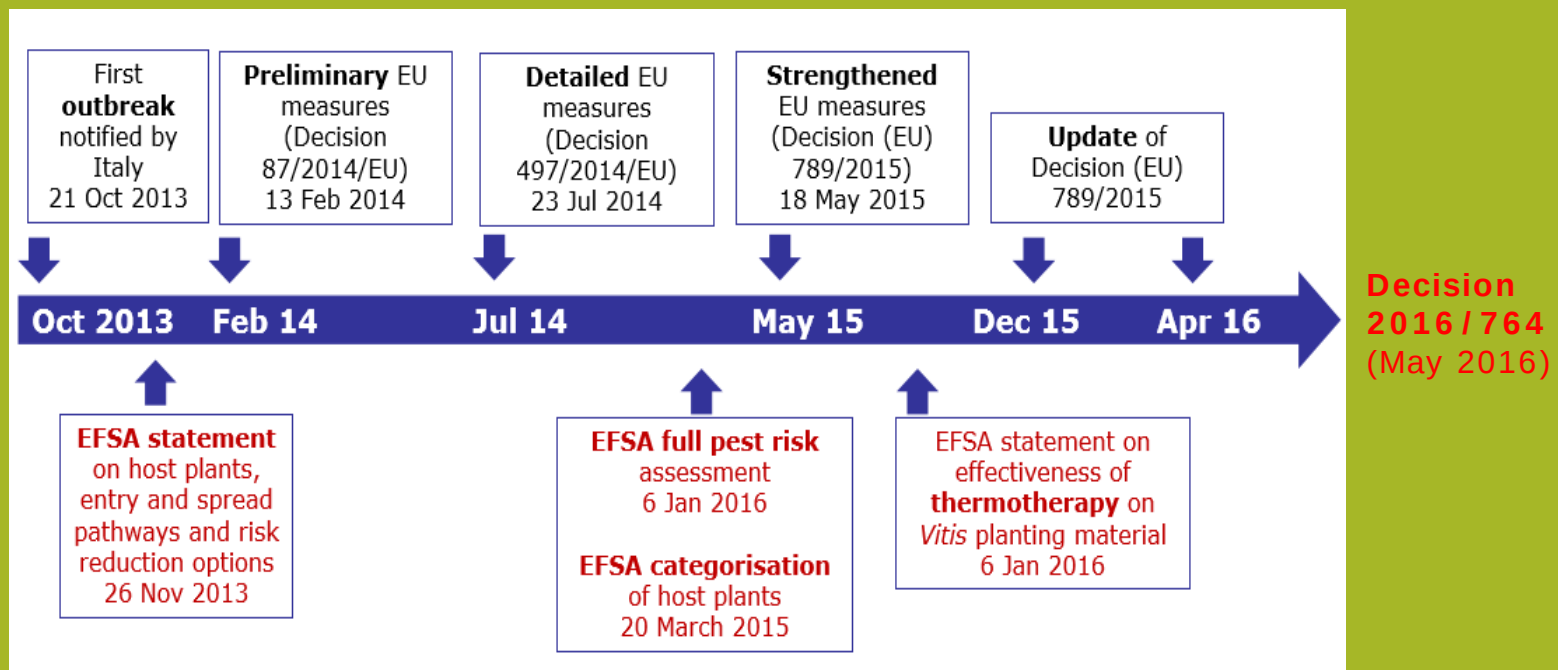
Xylella fastidiosa is responsible for the disease that is destroying olive trees in southern Italy, a new study has confirmed. Oleander and myrtle-leaf milkwort also succumb to the Apulian strain of the bacterium, but citrus, grapevine and holm oak appear to be resistant.

The EU measures of control

The 2000 / 29 is a general Directive, followed by measures specific for *Xylella*:

Commission Implementing Decisions (EU)

as regards measures to prevent the introduction into and the spread within the Union of *X. fastidiosa*



EU Regulatory framework of *X. fastidiosa* from its first outbreak in EU (2013), following scientific developments

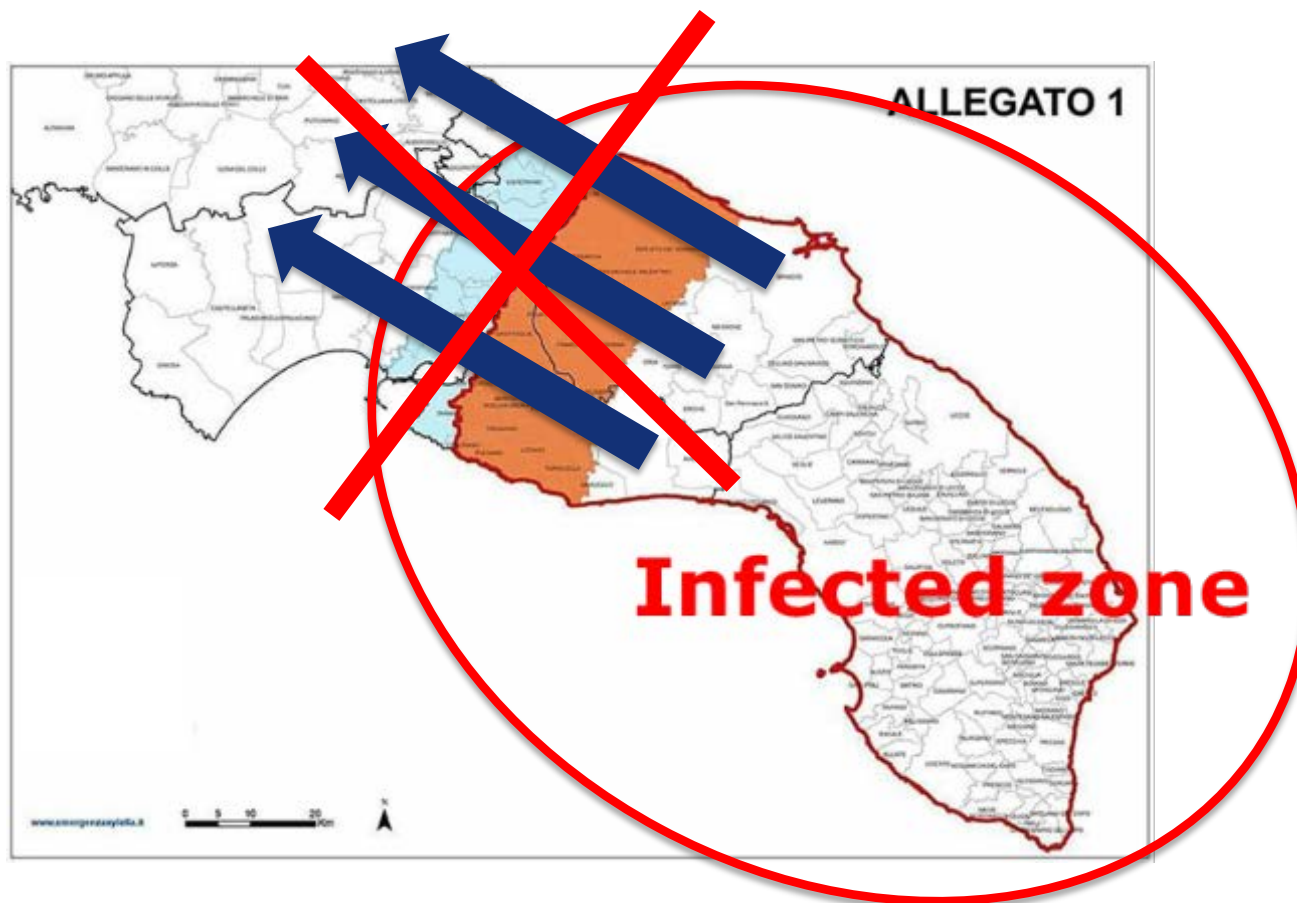
Major measures in the demarcated areas

1. Severe limitation to the plant movement in the demarcated areas

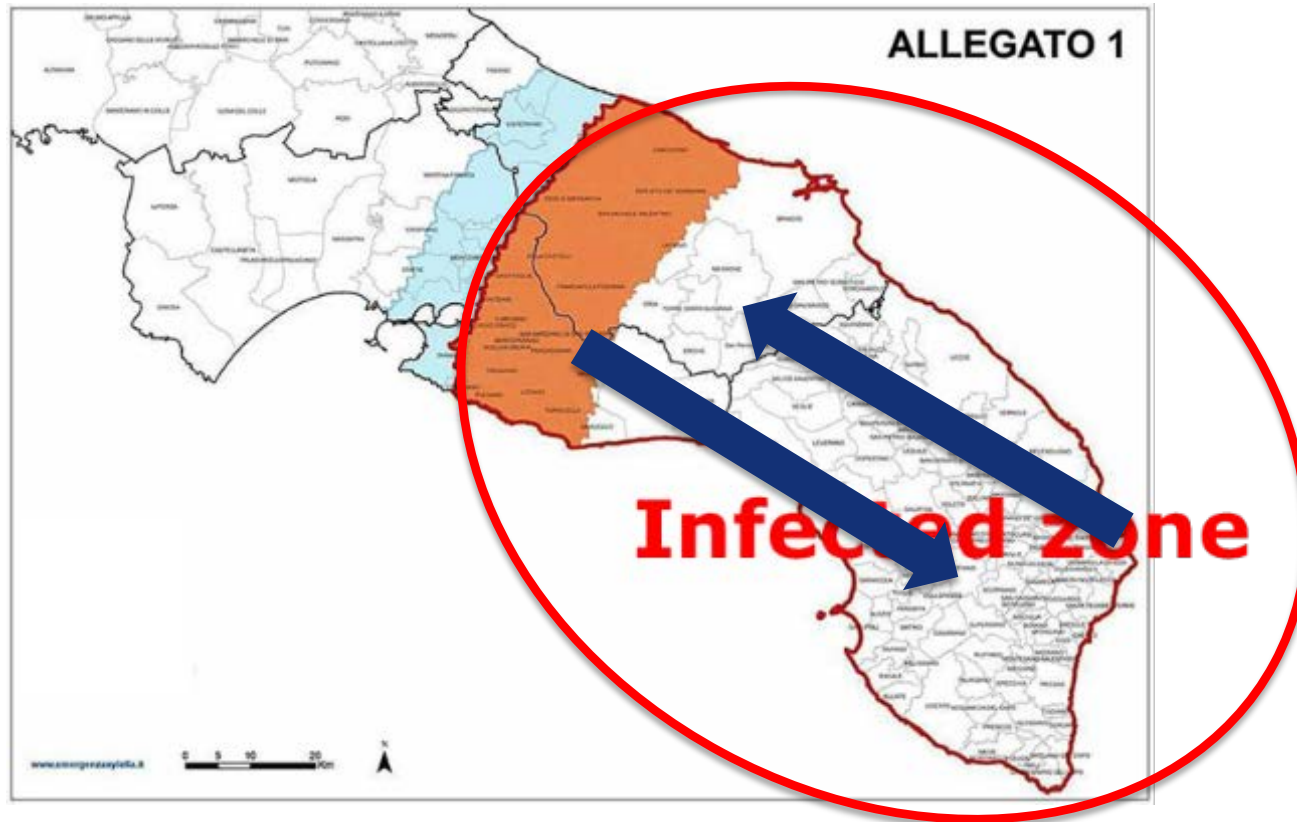


- **Regulated plants species** (plants for planting):
 - Specified plants (**ca. 300 plant species** susceptible to Xf worldwide)
 - **Host plants** (confirmed to host the strain/s of Xf in the specific demarcated area; in the Italian case: HOSTS OF THE LOCAL STRAIN OF SUB. PAUCA)

The export of specified plants (*ca. 300 plant species* susceptible to Xf worldwide) is prohibited!



Trade and movement **inside** of demarcated areas is **prohibited for host plants** but allowed for other specified plants



1. Severe limitations to the plant movement in the demarcated areas

- **Derogation for *Vitis* submitted to treatment with hot water (50°C, 45 min)**



Major measures in the demarcated areas

2. *ERADICATION*



In a **radius of 100 m** around infected plants, clear-cut of:

Infected and symptomatic plants

Host plants, regardless of their health status

(precautionary principle)

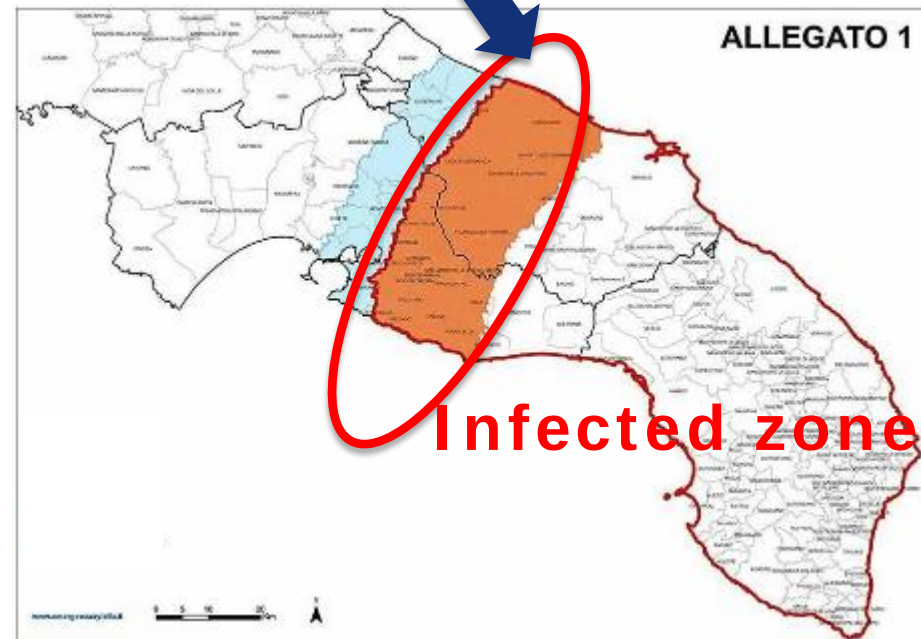
2. Important derogation for **Italy** (except for the BZ): Eradication is substituted with **CONTAINMENT**

Removal mandatory only for infected plants:

- Located within the upper 20 km adjacent to the buffer zone;
- Or
- In proximity of nurseries and growing sites;
 - In proximity of plants with cultural, social or scientific value

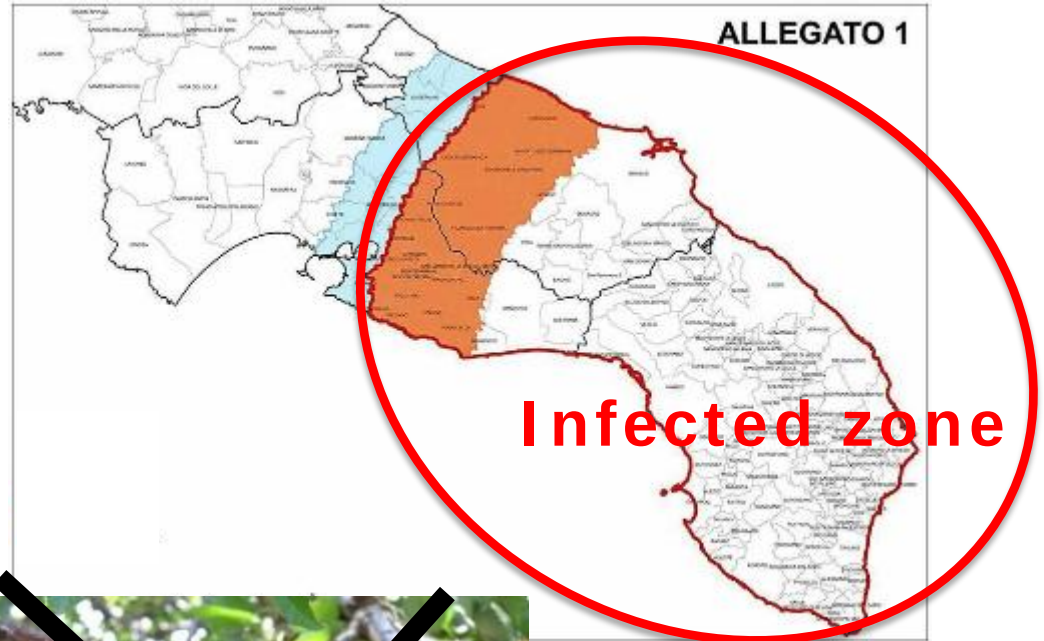
But...Sampling and testing all host plants 100 m around each infected plant (twice per year) is requested

AIM: to protect the BZ by reducing the pressure of inoculum



Major measures in the demarcated areas

3. *In the Infected Zone* *PLANTING of HOST PLANTS is PROHIBITED!*



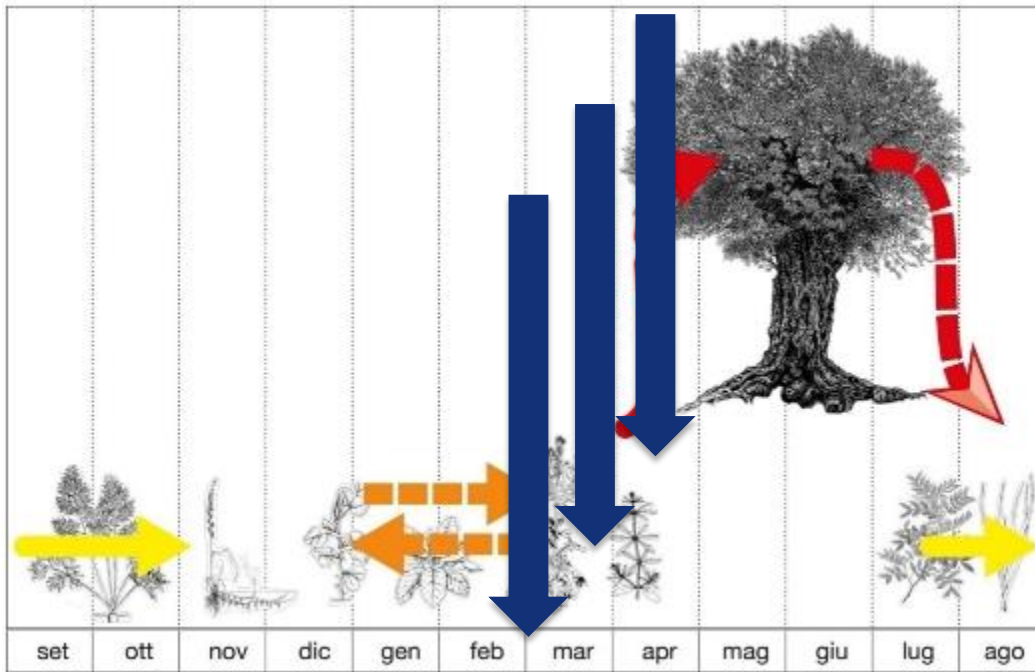
Major measures in the demarcated areas

4. **Vector control**



- **Appropriate phytosanitary treatments** prior to the removal of infected plants
- Ensure appropriate **agricultural practices**

mechanical weeding (i.e. tillage) in the spring
may be an efficient measure to
reduce the population of the vector



Regional Law: **mechanical weeding in March-April is MANDATORY** (more sustainable
vector control)

The economic and social impact

Xylella, 10 milioni di piante infette e un miliardo di danni



I numeri sono: 10 milioni di piante infette, 1 miliardo di danni. L'assemblea di Coldiretti Puglia «Presto risotto» a reddito da tre anni»

di Maria Claudia MINERVA

Mentre la Regione Puglia, dopo la trattativa di lunedì scorso a Bruxelles, spera che la Commissione Europea possa al più presto modificare la Decisione di esecuzione del maggio 2015 per cancellare il divieto di impianto nelle zone infette da xylella, la Coldiretti Puglia fa la conta dei danni causati dal pericoloso batterio che ha divorato gli ulivi del Salento all'indomani della pubblica assemblea di olivicoltori organizzata da Coldiretti che si è svolta a Manduria (Taranto) alla presenza del direttore del Dipartimento regionale all'Agricoltura, Gianluca Nardone.



10 millions of infected trees and 1 billion euro in loss?

„
Alla Dg Agri abbiamo
utilizzare 40 mln
per la zona
quanto
che, a
del mondo
giunto il rietto
ce dalla due giorni
evitando, attraverso l'incap
mento e ogni altro metodo utile,

giungibili, la possibilità
pianto delle specie van
stenti, a partire dal
dall'“FS-17”, anche
come “Favolosa” e la
zione del commercio d
telle, facendo leva sul
giunto della termoterap
zando addirittura un r
qualità. Le conclusion
(che proprio l'altro ieri
mato la tolleranza/res
“leccino” e “favolosa”
di xylella pugliese, ndr
no al vaglio della Co
europea, dove la lobb
dovrà fare quadrato p
vazione in via definitiv

Vale la pena ricor
attivo il portale per la

«Caro Emiliano, ecco i risultati della Xylella: chiudo, licenzio e vado altrove»



ARTICOLO
/Imprese a rischio coll

This season two nurserymen (grapevine) announced the transfer of their enterprises in other regions. The local employees are licensed

vicolo. Il tutto in un territorio
di piante prodotte ogni anno: Otranto.
produce circa 500 mila barbatelle di vite destinate al

Do not touch our olive trees !



The Xf epidemic in Apulia on olive trees has been and still is the plant disease with the greatest media impact ever experienced

The passionate involvement of many figures extraneous to the plant pathology but with great influence on the media (singers, journalists, sociologists, mathematicians, astrophysics, lawyers...) has led to an interesting deviation from a rational approach to an emotional one, feeding a wave of rejection of the actions of containment



incia la strage degli ulivi

o | 13 aprile 2015 | 15 Commenti

 Print  PDF





Lecce, Piazza S. Oronzo, March 2015

February 2015: the Italian government declares the «state of emergency» 1st case in the history of the Country



Appointment of an “extraordinary commissioner», a militar (general) with «special powers»

Aim: execution of the «Plan of containment», including some activities of eradication

- autumn 2015: *several appeals* were submitted against the commissioner's plan, the EU Decision and the decrees of eradication
- *December 2015*: following administrative and penal procedures, the program of *eradications was suspended* and the trees sequestered
- January 2016: the commissioner resigned from, the program of monitoring was suspended too
- February 2016: the “state of emergency” was declared “terminated”

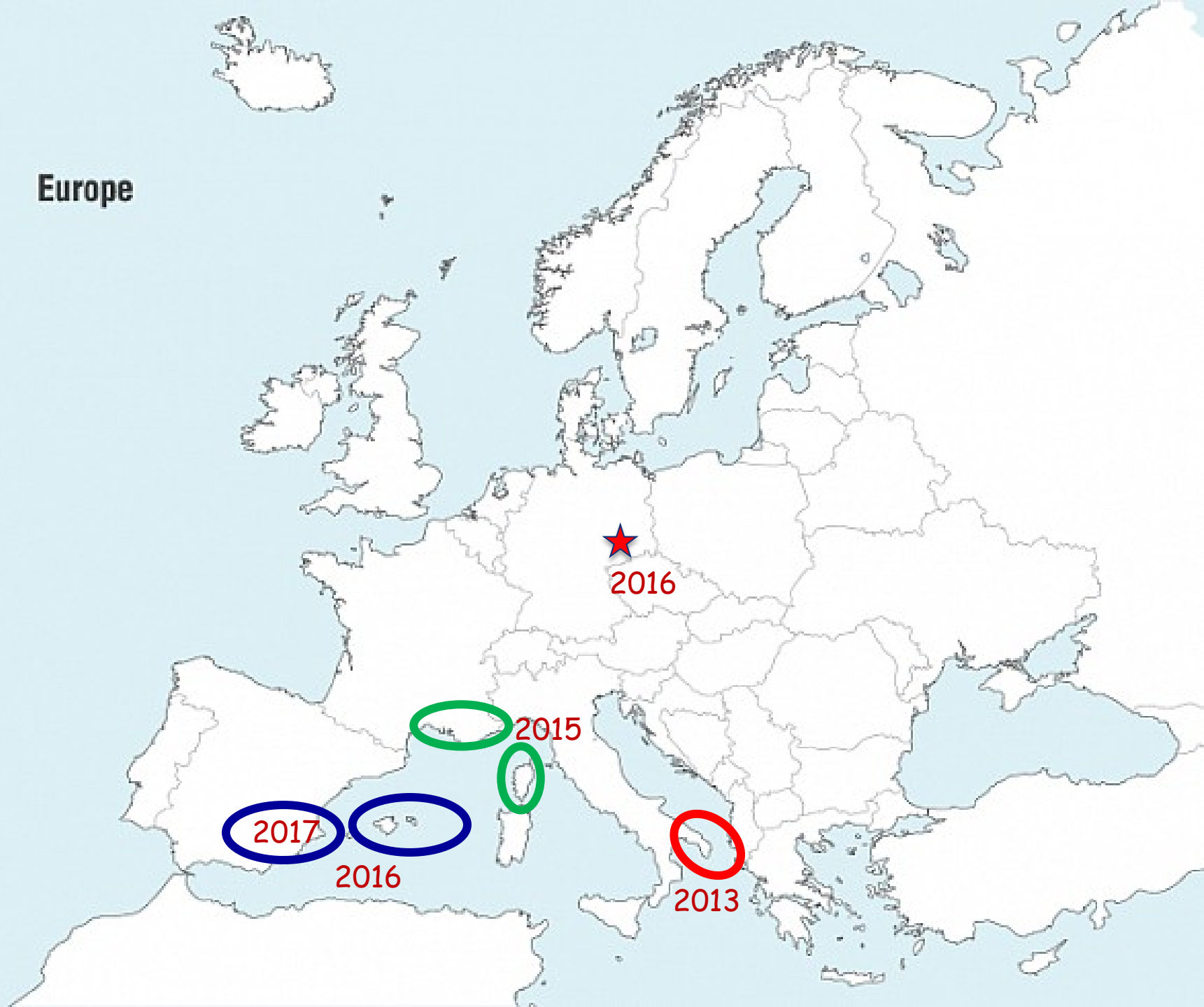
June 2016: the *Court of Justice of the EU* confirms the legality of the measures of the EU Decision on Xylella and rejects the appeals

Summer 2016:
the monitoring program starts again



Autumn 2016: the removal of infected trees, slowly, starts again

Europe

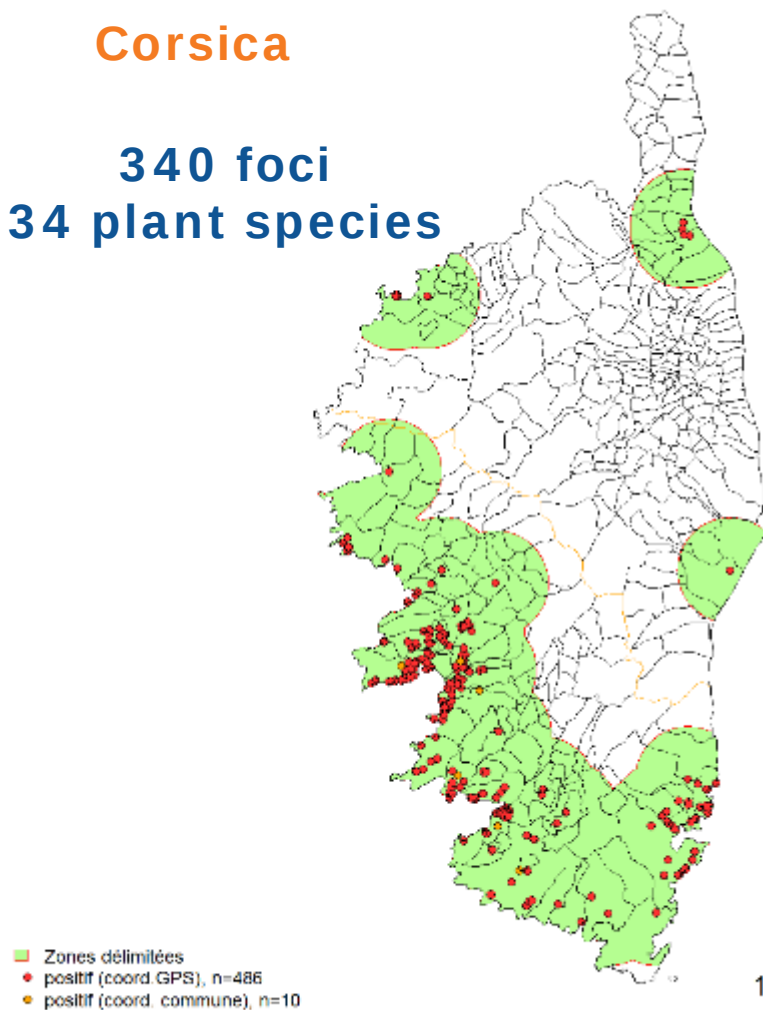


Europe



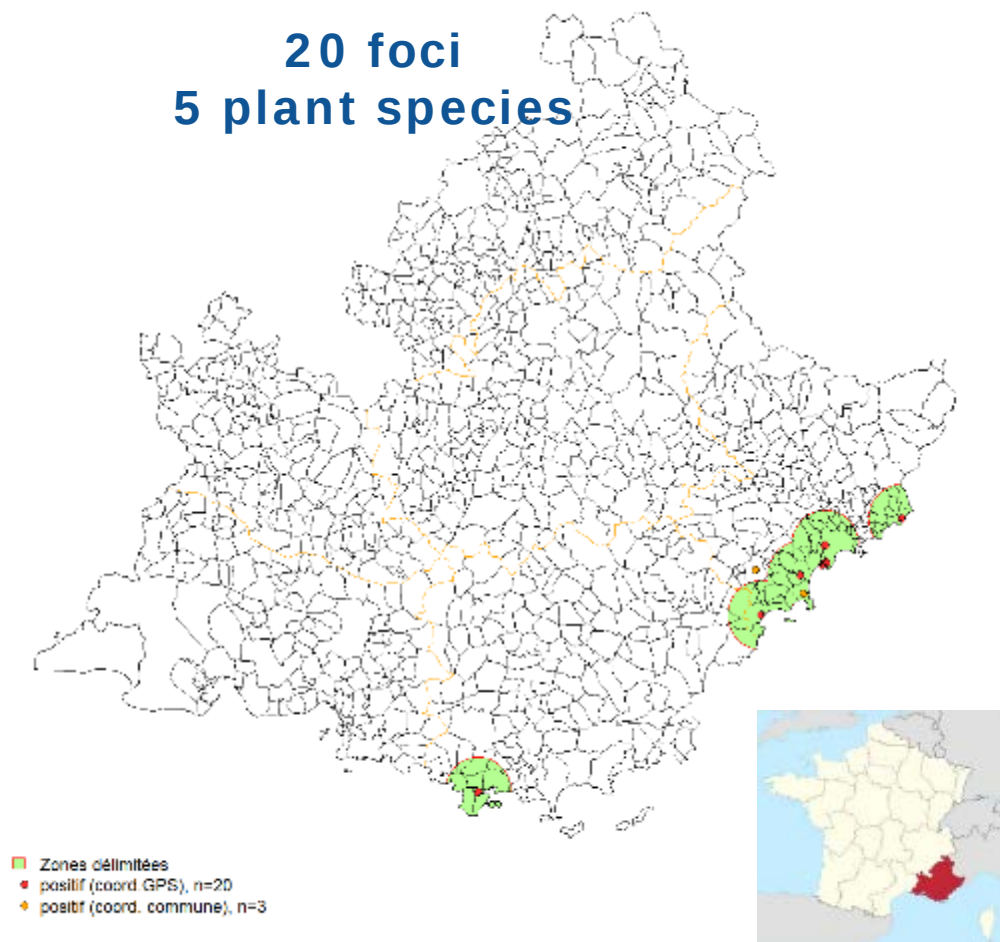
Corsica

340 foci
34 plant species



Région Provence-Alpes Côte d'Azur (PACA)

20 foci
5 plant species





34 plant species

The most common:

Polygala myrtifolia

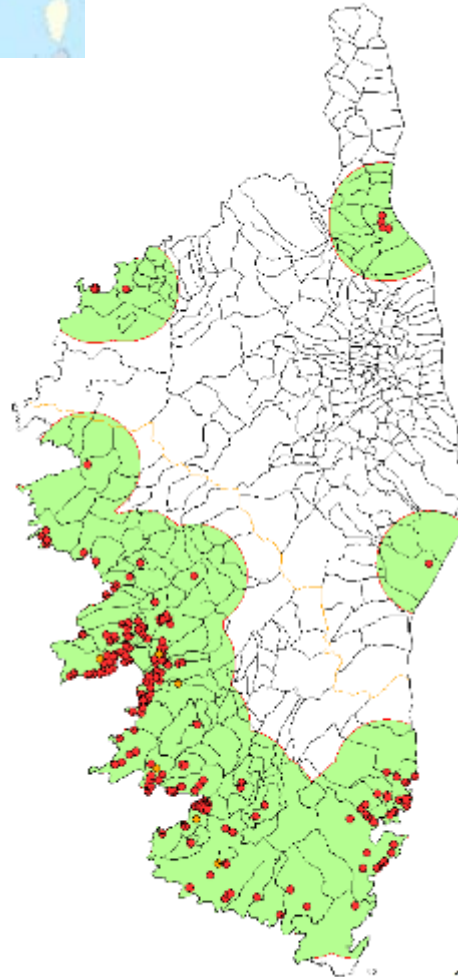
Calicotome villosa

Cistus monspeliensis

Helichrysum italicum

Lavandula angustifolia

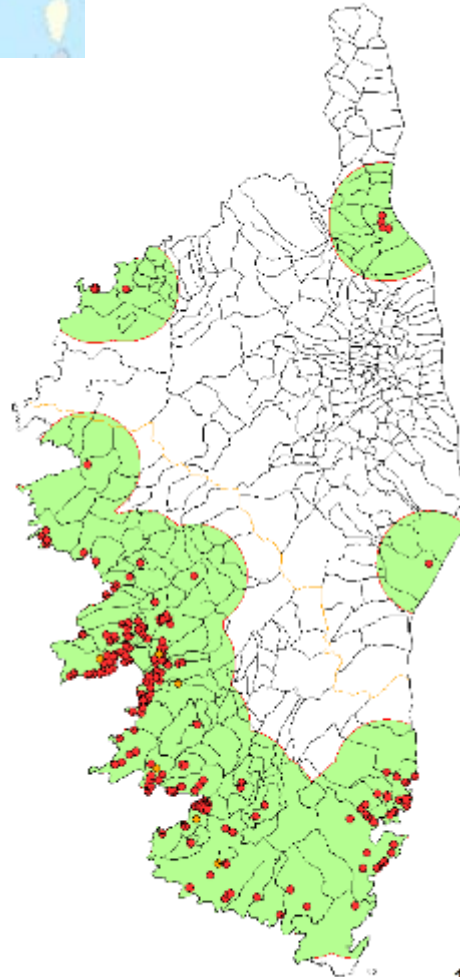
Spartium juncum



■ Zones délimitées
 ● positif (coord. GPS), n=486
 ● positif (coord. commune), n=10



Xf multiplex (ST6 & ST7)



- Zones délimitées
- positif (coord. GPS), n=486
- positif (coord. commune), n=10

Europe

★
2016

3. Map of the 'Demarcated Area' located between Saxony and Thuringia (Germany)

(Latest update notified to European Commission dated 4/10/2016)



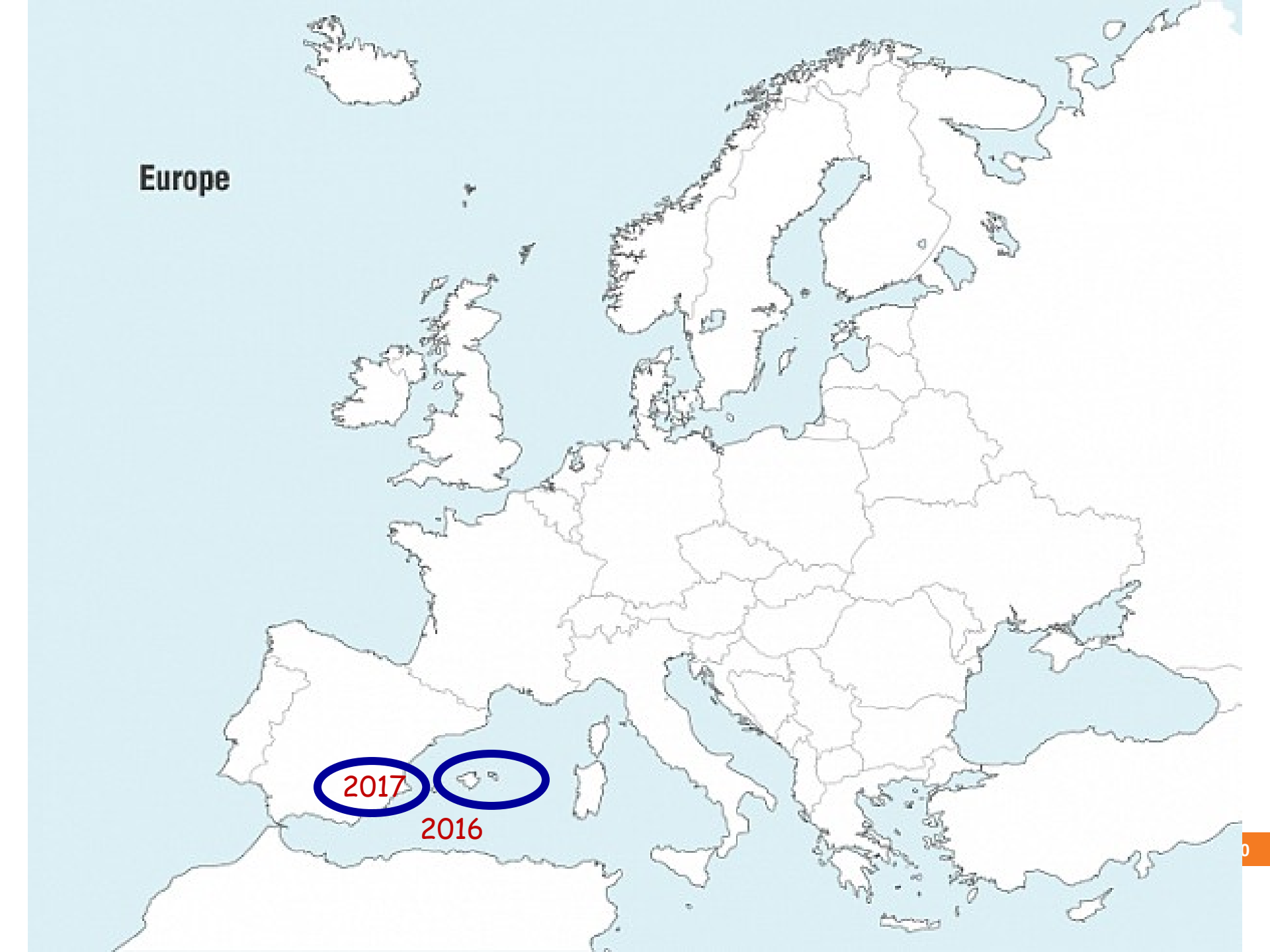
Oleander

Xf fastidiosa

Europe

2017

2016



A map of Europe and its surrounding regions, including North Africa, the Middle East, and Iceland. Two blue circles are drawn on the map to indicate specific locations. The first circle, labeled '2016' in red text, is positioned over the Azores archipelago in the Atlantic Ocean. The second circle, labeled '2017' in red text, is positioned over the Iberian Peninsula, specifically over Portugal. The map shows the outlines of major landmasses and bodies of water, with a light blue color scheme for the oceans and a white color scheme for the landmasses.

Situation of *X. fastidiosa* in Spain (Balearic Islands)

➤ **October 2016 first positive in Balearic Islands**



Situation of *X. fastidiosa* in Spain (Balearic Islands)

➤ October 2016 first positive in a garden center in Porto Cristo-Manacor

↙ Non typical symptoms in cherry



↙ Identified as *Xf* subsp. *fastidiosa* ST1



↙ Typical symptoms in cherry



Situation of *X. fastidiosa* in Spain (Balearic Islands)

MALLORCA

ESPECIE VEGETAL	MUESTRAS	POSITIVOS	PORCENTAJE
<i>Acacia saligna</i>	2	1	50
<i>Arbutus unedo</i>	1	0	0
<i>Asparagus acutifolius</i>	2	0	0
<i>Citrus spp.</i>	30	0	0
<i>Cistus monspeliensis</i>	4	1	25
<i>Coffea</i>	4	0	0
<i>Crataegus monogyna</i>	1	0	0
<i>Eugenia myrtifolia</i>	1	0	0
<i>Euphorbia</i>	2	0	0
<i>Ficus coronata</i>	1	0	0
<i>Hebe</i>	1	0	0
<i>Hibiscus</i>	1	0	0
<i>Laurus nobilis</i>	25	0	0
<i>Lavandula angustifolia</i>	2	0	0
<i>Lavandula dentata</i>	4	2	50
<i>Lonicera</i>	1	0	0
<i>Metrosidero excelsa</i>	20	0	0
<i>Metrosidero tomasi</i>	4	0	0
<i>Myoporum insulare</i>	1	0	0
<i>Myoporum tenuifolium</i>	2	0	0
<i>Myrtus comunis</i>	44	0	0
<i>Nerium oleander</i>	95	1	1
<i>Olea europaea</i> var. <i>europaea</i>	111	9	8
<i>Olea europaea</i> var. <i>sylvestris</i>	103	41	40
<i>Pittosporum tobira</i>	1	0	0
<i>Polygala myrtifolia</i>	48	14	29
<i>Potinia fraseri</i>	2	0	0
<i>Prunus armeniaca</i>	1	0	0
<i>Prunus avium</i>	8	3	38
<i>Prunus domestica</i>	6	1	17
<i>Prunus dulcis</i>	120	46	38
<i>Prunus nucipersica</i>	1	0	0
<i>Quercus ilex</i>	16	0	0
<i>Rhamnus alaternus</i>	7	0	0
<i>Rosmarinus officinalis</i>	29	5	17
<i>Rubus</i>	3	0	0
<i>Thuja</i>	1	0	0
<i>Vitis vinifera</i>	5	0	0
<i>Westringia</i>	10	0	0
Total:	720	124	17

MENORCA

ESPECIE VEGETAL	MUESTRAS	POSITIVOS	PORCENTAJE
<i>Ceratonia siliqua</i>	1	0	0
<i>Erica sp.</i>	1	0	0
<i>Olea europaea</i> var. <i>europaea</i>	4	2	50
<i>Olea europaea</i> var. <i>sylvestris</i>	14	12	86
<i>Polygala myrtifolia</i>	2	2	100
<i>Quercus ilex</i>	2	0	0
<i>Rhamnus alaternus</i>	1	0	0
TOTAL:	25	16	64



CSIC

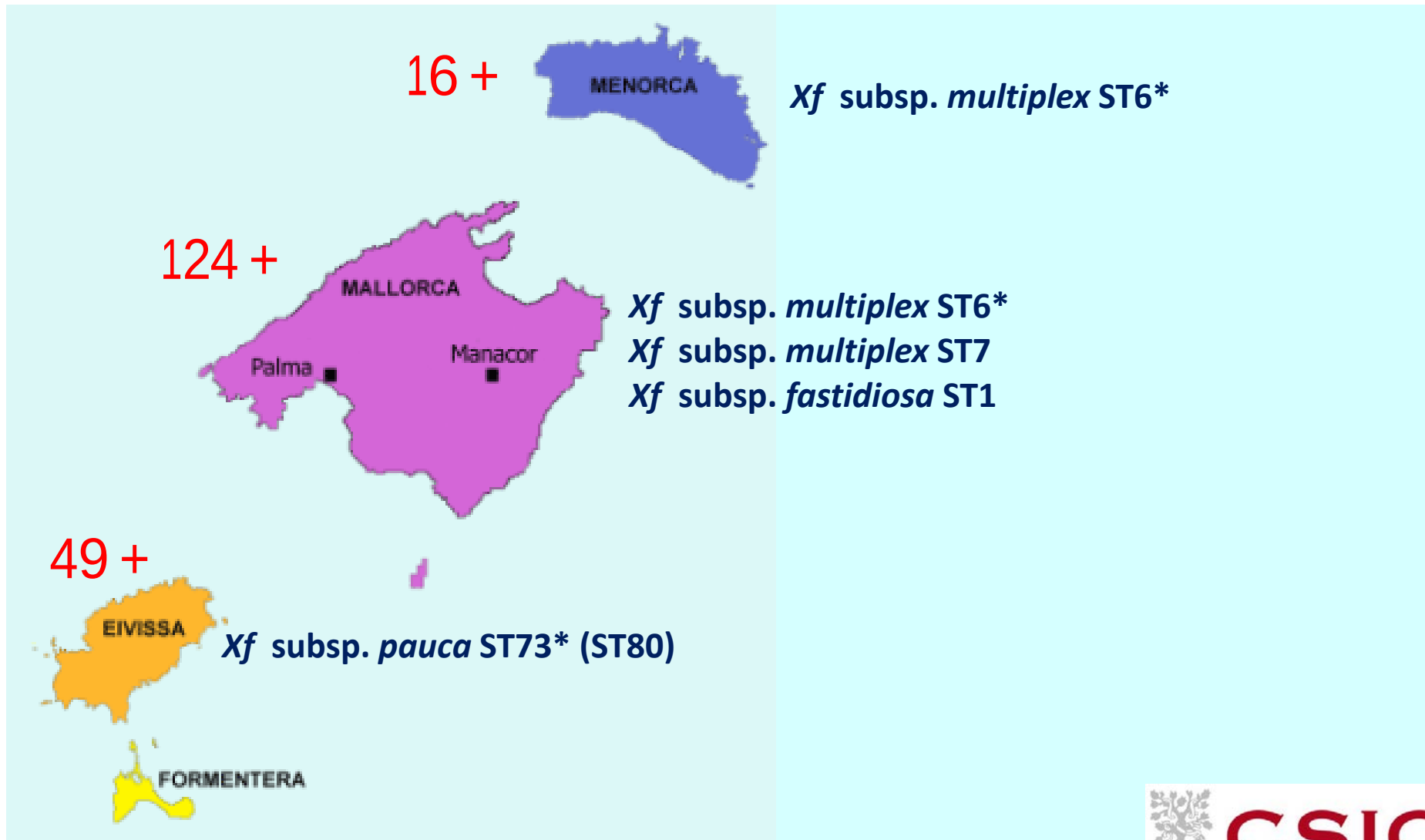
CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS

IBIZA

ESPECIE VEGETAL	MUESTRAS	POSITIVOS	PORCENTAJE
<i>Acacia saligna</i>	2	1	50
<i>Citrus spp.</i>	6	0	0
<i>Cneorum tricoccon</i>	1	0	0
<i>Convolvulus</i>	1	0	0
<i>Lavandula dentata</i>	8	3	38
<i>Lavandula latifolia</i>	2	0	0
<i>Metrosideros excelsa</i>	4	0	0
<i>Myrtus communis</i>	1	0	0
<i>Nerium oleander</i>	19	3	16
<i>Olea europaea</i>	24	17	71
<i>Olea europaea</i> var.	58	16	28
<i>Olea europaea</i> var.	15	8	53
<i>Perlagonium</i>	8	0	0
<i>Pistacea lentiscus</i>	6	0	0
<i>Polygala myrtifolia</i>	5	1	20
<i>Prunis dulcis</i>	16	0	0
<i>Phoenix robelini</i>	1	0	0
<i>Retama</i>	1	0	0
<i>Rosmarinus</i>	18	0	0
<i>Vitis vinifera</i>	1	0	0
<i>Westringia</i>	6	0	0
TOTAL:	203	49	24

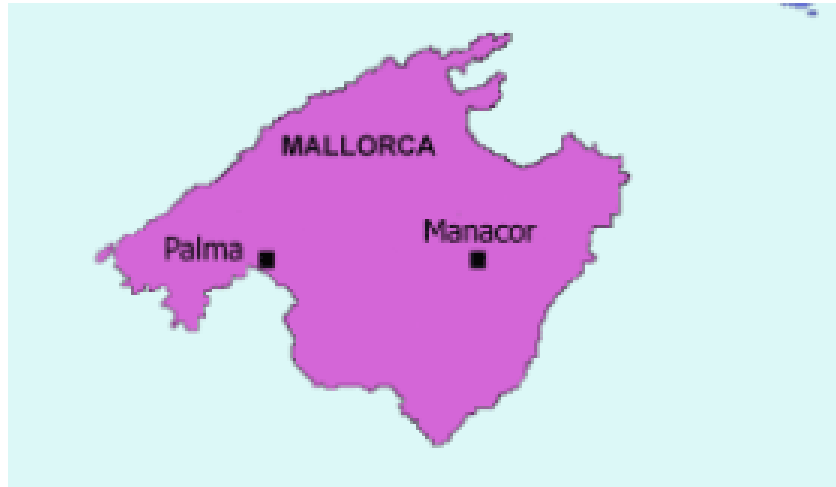
Number of positives between October 2016 March 2017

Situation of *X. fastidiosa* in Spain (Balearic Islands)



189 positive samples in 11 different host species

Update of *X. fastidiosa* in Mallorca (Sept. 2017)



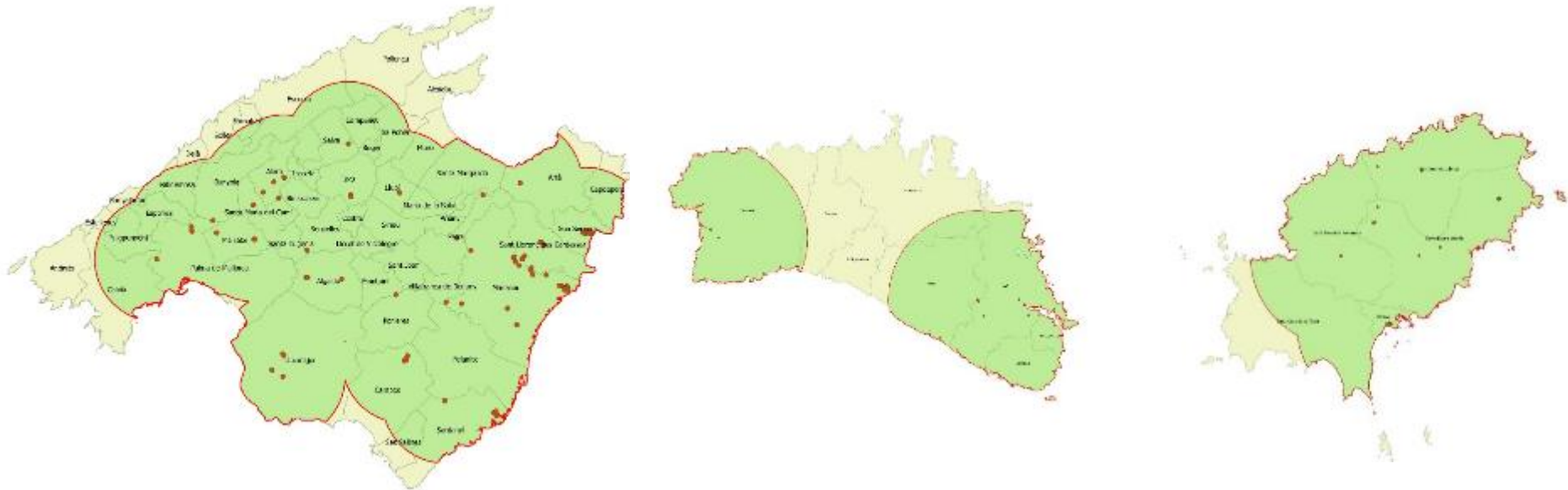
Xf subsp. *fastidiosa* ST1

20 positive wine grapes!!!



**1st true warning for
Pierce disease in
Europe!**

Situation of *X. fastidiosa* in Spain (Balearic Islands)



Mallorca
> 80 % Demarcated zone

Menorca
> 60 % Demarcated zone

Ibiza
> 90 % Demarcated zone

Situation of *X. fastidiosa* in Spain (Balearic Islands)

Olivera (*Olea europea* var.
europea)

Xylella fastidiosa subsp.
multiplex



GOIB

Situation of *X. fastidiosa* in Spain (Balearic Islands)

Ullastre (*Olea europea* var.
sylvestris)

Xylella fastidiosa subsp.
multiplex



GOIB

Situation of *X. fastidiosa* in Spain (Balearic Islands)

Poligala (*Polygala myrtifolia*)



GOIB

Situation of *X. fastidiosa* in Spain (Balearic Islands)

Ullastre (*Olea europea* var.
sylvestris)



GOIB

Situation of *X. fastidiosa* in Spain (Balearic Islands)



GOIB

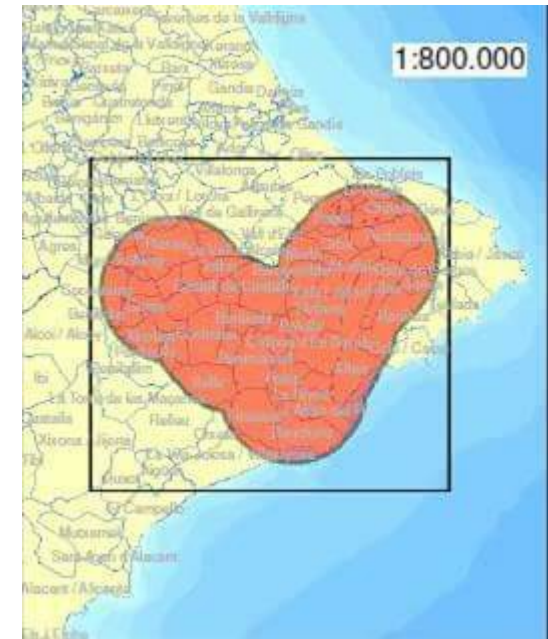
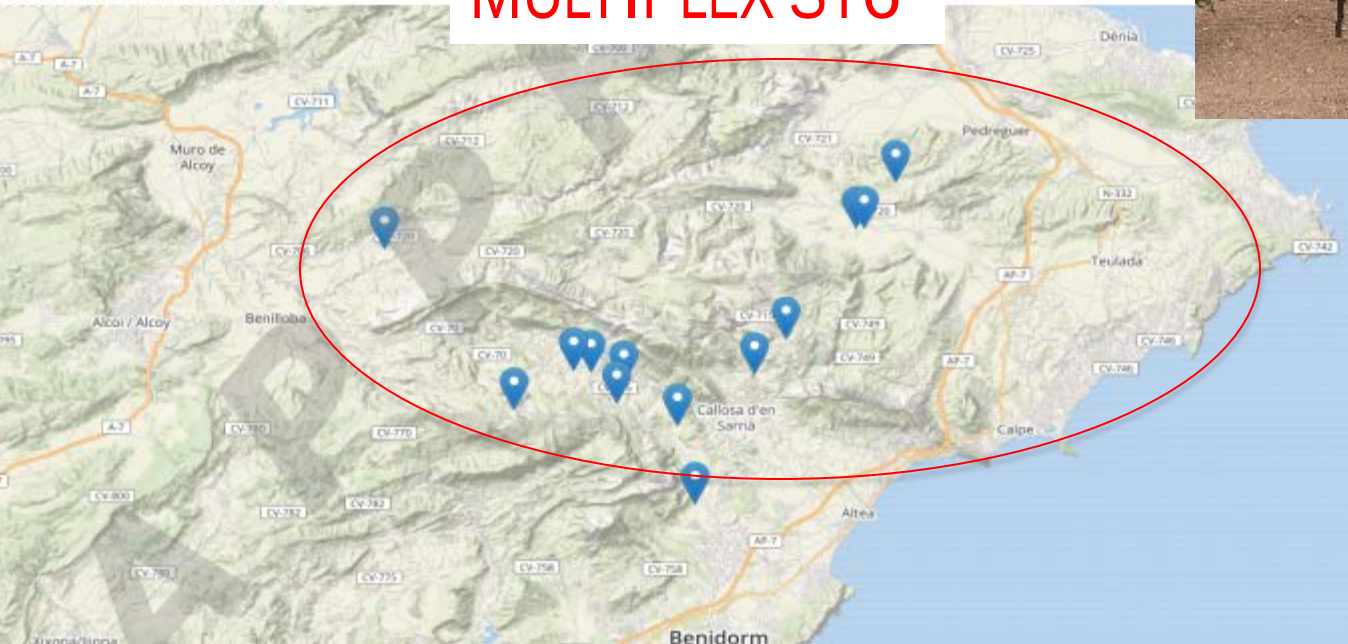


Situation of *X. fastidiosa* in Spain (mainland)



Map_12858_1504269610.png

MULTIPLEX ST6



45 positive **ALMONDS** in 28 different sites

New disease, new strain, new environnement, new geographic areas

Many research gaps to be filled:

Aetiology?

Vectors?

Epidemiology?

Genetic of the bacterium?

Hosts?

Resistance in germplasm?

Early detection?

Management?

Control?

How the EU has reacted

Between 2015 and 2016 two relevant research projects in the framework H2020 programs have been funded with an unusual investment for a research project on a plant disease



EU support to research programs

*Two 4-years EU projects, "Pest Organisms Threatening Europe" (POnTE), addressing among other pests also *Xylella fastidiosa* (1st Nov. 2015), and "Xylella Fastidiosa Active Containment Through a multidisciplinary- Oriented Research Strategy" (XF-ACTORS) (1st Nov. 2016) have been funded by the Commission.*

A significant effort: ca. 10 million of Euros of budget dedicated to Xylella



Xylella Fastidiosa Active Containment Through a multidisciplinary- Oriented Research Strategy

Call SFS-09-2016 (***XF-ACTORS***)

.....
Scope: ***Grants awarded under this topic will be
complementary to POnTE***



COORDINATOR

The partnership



Xylella Fastidiosa Active Containment Through a multidisciplinary-Oriented Research Strategy



STAKEHOLDERS



Regione Puglia



COLDIRETTI



European
Nurserystock
Association



FEPEX

Federación Española de Asociaciones de
Productores Exportadores de Frutas,
Hortalizas, Flores y Plantas, Spain



Department
for Environment
Food & Rural Affairs



SIDOC, Syndicat Interprofessionnel
Des Oléiculteurs de Corse, France



NPPO, National Plant Protection
Organization, Greece



Organizaciones de Agricultores y
Ganaderos, Spain



ACEITES DE OLIVA
DE ESPAÑA



APPITAD, Association of Producers in
Integrated Protection of Trás-os-
Montes and Alto Douro, Portugal

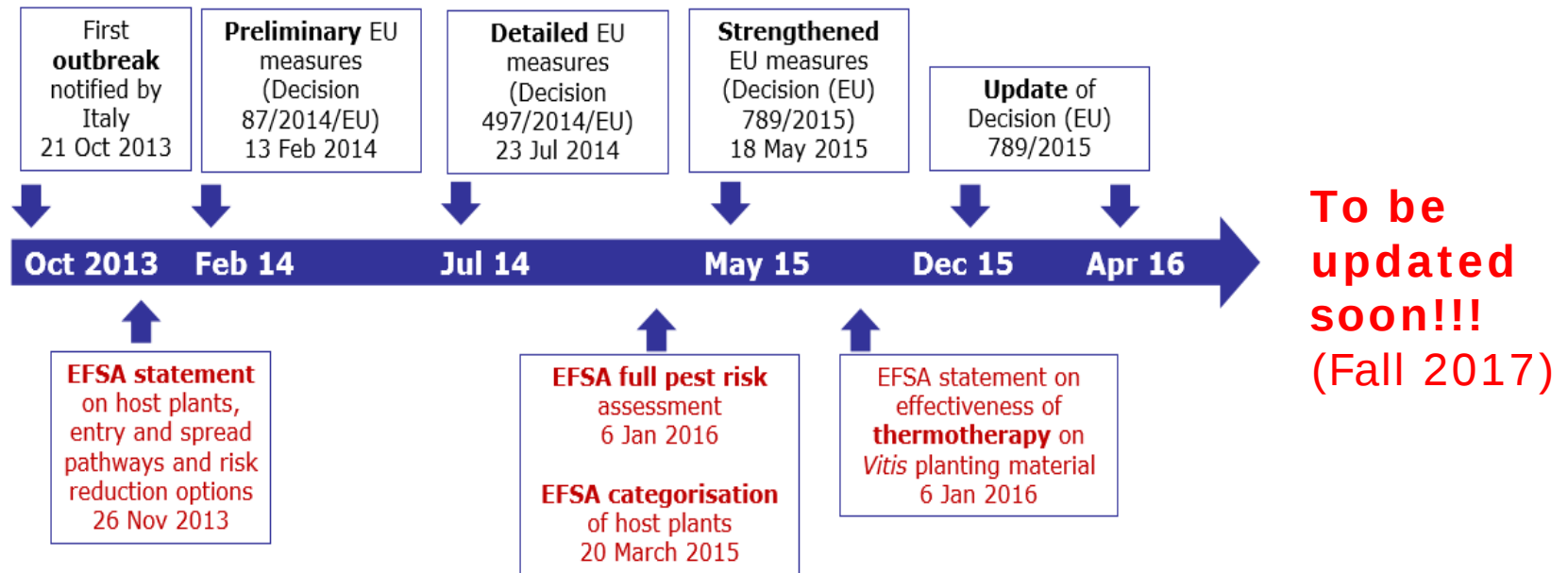


Ministry of Rural Development and Food
Greece



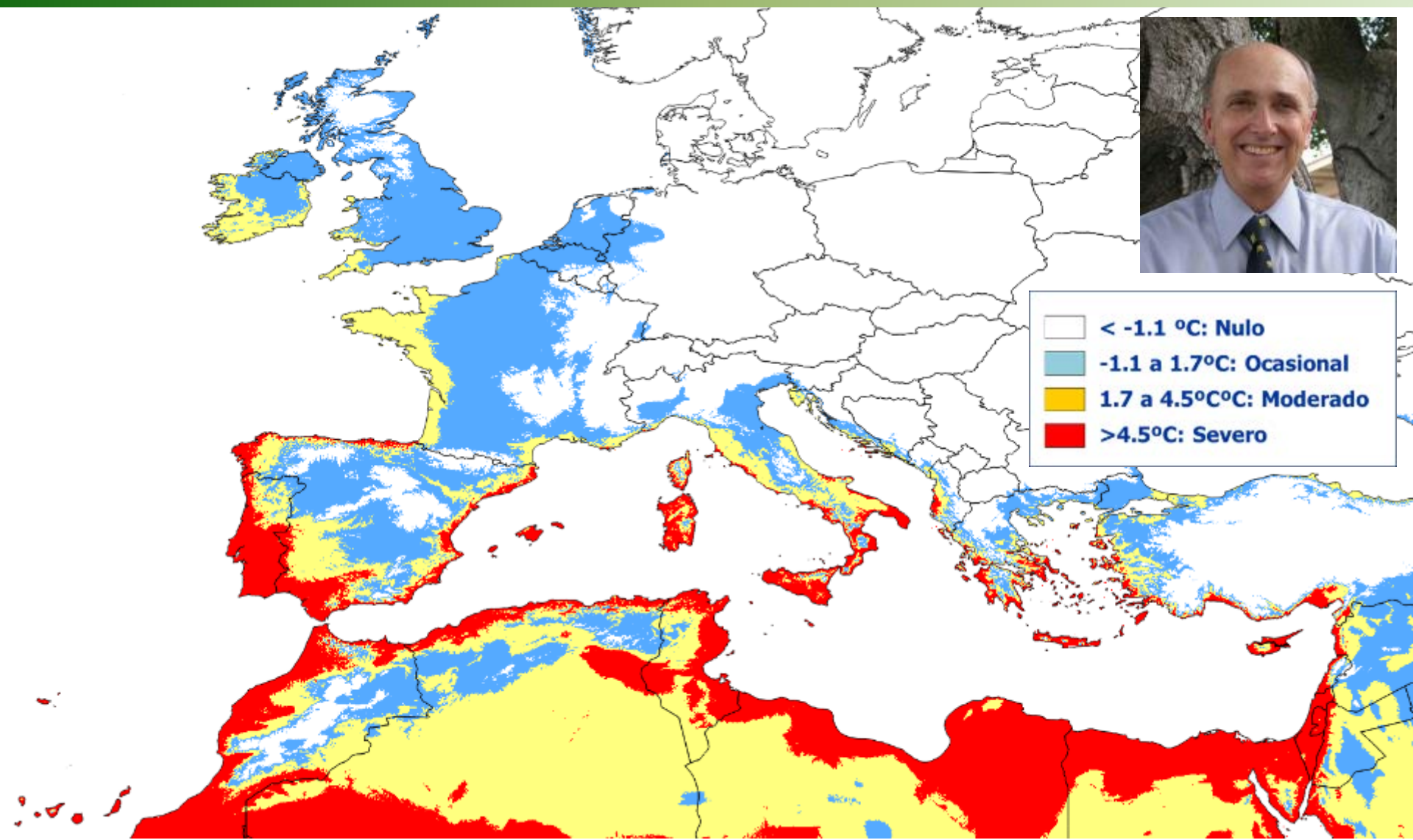
Commission Implementing Decisions (EU)

as regards measures to prevent the introduction into and the spread within the Union of *X. fastidiosa*

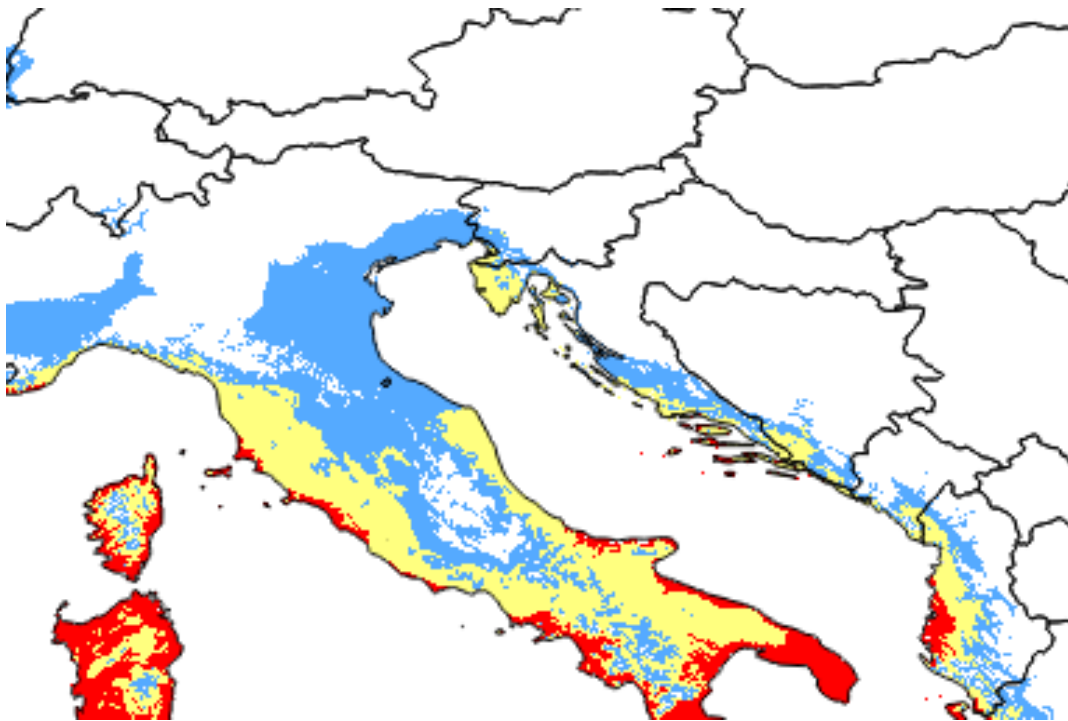


EU Regulatory framework of *X. fastidiosa* from its first outbreak in EU (2013), following scientific developments

Una primera aproximación al Riesgo potencial para *Xylella fastidiosa* para Europa en base a la Temperatura mínima del mes más frío (Criterio A.H. Purcell, UC Berkeley)



Una primera aproximación al Riesgo potencial para *Xylella fastidiosa* para Europa en base a la Temperatura mínima del mes más frío (Criterio A.H. Purcell, UC Berkeley)



- ➡ www.ponteproject.eu
- ➡ www.xfactorsproject.eu

*Thanks for your
attention*